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The Cotton Spinners' Interest in Improved Baling.

Mr. William C. Lovering, one of the leading cotton-mill manufacturers of New England, has been giving very close study for the last year or two to improved methods of handling cotton, and in this issue we publish a paper read by him on September 21 before the Arkwright Club, of Boston, bearing on the relation of the "cylindrical lap bale" to the interest of the cotton-spinner. Mr. Lovering takes up the matter from the expert spinner's point of view, and, after showing by elaborate calculations the value of the new system of baling, he takes the ground that sooner or later the old-style system of cotton baling will have to go, and that manufacturers, seeing the advantages of the lap bale, will make haste to adopt it. He says:

The lap bale will save the cost of the breaker lapper with the automatic feeder and the power required to drive it, which in reality is half the power employed in the picking-room. It will also save one-half the floor space and about one-third the labor in the picking-room. Work hitherto done in the picking-room of our mills is hereafter to be done practically by cheap negro labor in the South. In other words, our cotton is to be delivered to us in an advanced stage of preparation.

He points out the advantages that will constantly accrue in the saving of freight, storage, insurance, handling, the improved condition of the cotton and the great decrease in the amount of waste, and says:

The fiber is not broken or injured by excessive beating, consequently, there is less fly, and more full-length fiber finds its way into the yarn than by the old method, thus insuring a stronger and even yarn. The cylindrical bale has passed out of the tentative stage and become a commercial and mechanical success. It is a fact accomplished. Hereafter the manufacturer who uses it will have an absolute and indisputable advantage over the one who does not use it, and he who does not use it will find himself outstripped and far behind in the race.

That is a very striking statement to come from such a man as Mr. Lovering, whose position in the cotton-manufacturing world gives authority to his views. Referring to the work of the American Cotton Co., he adds:

It is not the purpose of the company to antagonize any other bale. It looks upon every other system that is an improvement over the old bale as an ally, and not as a rival. The field is large and will not be entirely covered for a long time. There is room enough for each and every system.

Summing up the advantages by the doing away with the many unnecessary burdens of double handlings and extra cost that now attend the old system, all of which fall on the farmer, he takes the position that—

The ultimate result will be that the manufacturers will really get cheaper cotton, and the planter will get more for his cotton. The saving to both is due to the elimination of the middlemen from the cutting off of the opportunities to pilfer and from reduced freight and insurance charges.

Probably no man in this country is better able to present an authoritative statement of the case than Mr. Lovering. Identified for many years, as he and his family have been, with the great cotton-mill interests of New England, and to some extent with the South also, he has, as a practical manufacturer as well as a large capitalist, studied every phase and feature of the cotton business. As stated in the Manufacturers' Record on several occasions, Mr. Lovering has been for the last year or two thoroughly testing the "round lap bale" system in his own mills, and investigating every phase of the revolutionizing possibilities that seem to lie in this system of cotton handling. His views on the subject, as stated to the Arkwright Club, an association of the leading cotton manufacturers of New England, will, therefore, necessarily command wide attention as the final verdict of one of the highest mill authorities of the country.

In this issue is also published an interview, which appeared in the New York Journal of Commerce of September 17, with the editor of the Manufacturers' Record, in which some reference is made to the low price of cotton and the possibility that the round bale and other modern improvements may come into play to such an extent as to help to materially offset low prices and enable the farmer to secure as large net results as he did when prices were higher. In this interview is also given a statement made by a leading Southern cotton manufacturer, Mr. T. W. Pratt, of Huntsville, Ala., who claims that the round-bale cotton is worth to a Southern mill at least \$2 a bale more than the old square bale, and that, in addition to this increased valuation, is the advantage of a very much lower cost for ginning.

These are subjects which materially concern the South, and a full and free discussion and investigation are worthy of the thoughtful study and consideration of every man interested in the prosperity of the farmers of the South, as well as of all other classes.

A Tip to the South.

The Philadelphia Record, in commenting upon the announcement of the success of the experiment of shipments of pig iron and cotton from Galveston, Texas, to China and Japan, says that there ought to be a sure and growing market for American cotton in the Far East, and that that fact alone should afford an intruding basis for the new venture, the success of

which is a justifying proof of the awakening of the maritime spirit. It adds:

In the light of recent development we may hope to have the globe pretty well crisscrossed with new lines of steam traffic before the end of the century.

About the only additional comment to be made at this time is that it is for the Southern ports, particularly those on the Gulf, to decide how large a share they shall have in this steam traffic with the Far East. The Nicaragua canal will give them a tremendous advantage, and they should be quick to seize it and untiring in their work of reaching out to new markets of the Pacific.

An Industrial Sectionalism.

In spite of the many other reasons which have been clearly set forth at the North in explanation of the condition of the cotton-mill industry in some localities there, there is still an inclination in some quarters to hark back to Southern competition. One of the latest utterances on this line is in the quarterly report of employment and earnings made by the Massachusetts bureau of statistics of labor. Touching conditions at Fall River, it says:

Southern mills reduce prices of goods here by overproduction. While the mills here stopped last year to work off accumulated stocks, the Southern mills ran full time. Southern mills also divide the selling market. It is claimed by some treasurers that the mills in this country can make enough cotton goods in six months to supply a year's demand. "Prints are the keystone," and they are made from coarse goods, such as are generally made in the South. When prices for coarse goods fall, prices for all cotton goods fall. If there is a drop of one-eighth of a cent per yard in prints, customers expect the same drop in the prices of all goods. It is stated by certain managers that few Southern mills are in position to carry large quantities of manufactured goods, so sales are frequently made at low prices, which has the effect of lowering the market all around.

This is one of the few positive statements in that portion of the report, for other paragraphs indicate that the cotton interests there are apparently as much at sea as ever. For instance, the report says:

Opinions vary very much regarding the conditions of the cotton manufacturing interests here, three-sevenths of the mills visited claiming that sales and inquiry are about the same for May this year as for same season last year; one-seventh claims same volume, but lower values; two-sevenths state that business is not as good as last year, and one-seventh that it is better. All mills but one visited claim that demand and inquiry has greatly fallen off since February 19. Some representatives state that the shutdown of the New Bedford mills gave the Fall River mills a larger share of the market for goods. One mill claims that demand is better now than in February. It is claimed by some that there is sufficient demand to take the full product of the Fall River mills; by others that there is a fair demand for goods, but at prices below the cost of production, which causes an accumulation of goods that are held in hopes of a change for the better.

In connection with this indefinite pessimism should be read a recent editorial in the Fall River Herald, in which it says:

The great advantage which the South enjoys over the North today is to be found in the absence of humane laws regulating the hours of labor. It is the only advantage worth mentioning, if the wages paid are excepted. * * * Strangely enough, the leading men of the South seem to be glorying in their ability to keep the masses on a European plane, etc.

The lack of information and the surplus of misinformation, to say nothing of the evident animus, in these extracts, have an excellent corrective in an editorial in the New York Commercial Advertiser. It says:

Will cotton manufacturing be transferred to the South? This is the question which recent highly favorable reports of industrial activity in that region have brought nearer to the acute stage among the manufacturers of New England. It is by no means new to them, having often made itself felt in changes in plant and methods of production. Deputations and experts have been going South in recent years to see for themselves whether the elements of victorious competition existed there, and have come back with opinions which, though lacking unanimity, have inclined against New England. It is becoming clear that the lessening margin of profit in the Eastern manufacturing cities is ominous to the industry. These cities are becoming the storm center of industrial war amongst us. Is it because the primacy in cotton manufacturing is slipping away from them? If the question is to be decided by the preponderance of natural advantages, the South will surely win. There the mill-owner and the operative are, so to speak, at home in the cotton fields, and in the important item of transportation have the East at a great disadvantage. They have also abundant water-power, cheaper labor and little or no interference with freedom of contract as to working hours. The remaining factors which do not yet appear to be in sufficient force are a sufficiency of capital and skilled labor. We are told, however, that Eastern and Northern men are going South in increasing numbers, building mills and taking skilled labor with them. Recent reports say that capital is being largely invested there in cotton-manufacturing enterprises. Capital and skilled labor will, of course, go where they can profit most, and it will be well worth observing whether the transfer now going on shall increase, say, within another year, to proportions really significant. A large number of the mill-owners, superintendents and designers in the South have gone there from the East, and their convictions in regard to the question cannot fail to influence others to follow them.

The editorial adds that the note of sectional alarm and rivalry is, of course, heard. That note, be it observed, has not been sounded by the South, though there is no doubt that it is heard, and heard persistently, in more keys than one. It is a lurking menace to the South and to every man in the country who has not been trained to look to the general government for artificial help in maintaining abnormal positions after the reason for those conditions have disappeared. It is a menace to a fundamental idea of American liberty, the right of private contract. It is a menace which, if indications fail not, will increase in importance unless there is a determined, unremitting resistance to it.

It is for the South to lead in the propaganda for the continuation of the enjoyment of an ancient right, for the suppression of this industrial sectionalism which may become political, and in opposition to attempts at interfer-

ence by legislation with the relations of employer and employee. The experience of Massachusetts in that line ought to be a warning to all men.

Great Britain Thinking.

One of the most significant presentations of the change taking place in American commerce is a long article in the London Statist, under the title of "Our Abnormal Foreign Trade." The word abnormal, as used in the article, applies to the huge debt of England to the United States. The Statist says that the immediate result of the Dingley tariff was an immense shrinkage in the English exports to the United States, and that during the whole of the past twelve months this country's purchases of British goods have been unusually small. It does not attribute this fact entirely to the operations of the tariff, but it says:

The effect upon our total export trade of the small purchases of our goods for America has been serious. In the twelve months to June 30, 1897, the value of our produce exported was £238,552,000, but in the twelve months to June 30, 1898, it was only £229,448,000—a decline of over nine millions, or nearly 4 per cent. Almost the whole of this heavy shrinkage was due to the small purchases of the States. In the twelve months to June 30, 1897, America bought British goods of the value of £22,962,000, while in the past twelve months its purchases were only £14,687,000—a decline of £8,275,000, or 36 per cent. If we made our comparison with 1895-96, when trade in the States had appreciably recovered, the effect of the abnormal conditions of the past twelve months is still more apparent. In that year our total exports amounted to nearly £239,000,000, of which £25,697,000 was to the States. The value of our total shipments during the past twelve months, compared with two years ago, has therefore declined £9,228,000, while the falling off to the States has been no less than £11,010,000, or 43 per cent. * * * On the one hand, we have during the past twelve months sold little, and on the other have bought heavily. In the twelve months to June 30, 1896, our imports of United States produce were valued at £91,000,000; in 1896-97 they were worth £113,000,000, and in the past twelve months they have been of the value of £123,000,000. Thus, compared with two years ago, we have bought £32,000,000 more produce from the States, while we have sold to them £11,000,000 less of our goods, and, compared with last year, we have bought over £10,000,000 more, and have sold £8,000,000 less. Our purchases from other countries have been about the same in the three years, and consequently the whole of the increase in our total imports of the past two years has been due to our greater purchases from the States.

It presents tables showing the decline in a very striking manner, and points out that the effect of a double movement of reduced exports and much greater imports is that the balance in favor of the United States upon this trade with Great Britain has been quite exceptional, and that the balance during the half-year ended June 30, 1898, has never been previously exceeded, the exports of British goods to the United States having been only £7,439,000, against £68,729,000 of American produce. It shows that in the twelve months ended June, 1898, the balance of imports into Great Britain from the United States over exports to America was £108,712,000; in the same period for 1897, £90,039,000, and in 1896, £65,635,000. Commenting upon these figures the Statist says:

The result of the recent successful war has been to restore confidence in the States, and active trade conditions in that country may now be witnessed. With capital flowing freely, and with renewed prosperity, America should be a much better customer for our goods in the coming twelve months than it has been for some time. At the same time, with good crops at home and elsewhere, we shall require to pay the States much less for our imports in the coming twelve months, and normal conditions may thus be resumed.

This is a hopeful view. It should be considered well by American manufacturers. The facts are substantially correct, but we cannot see the absolute correctness of the deductions. To be sure, the large balance in favor of the United States is due to the vastly-increased exports of grain at advanced prices, but if the United States are competing in English territory with English manufacturers we see no reason why they cannot resist successfully the efforts of English manufacturers to regain in this country their former status.

The Year's Trade at Charleston

The News and Courier, of Charleston, S. C., with its accustomed enterprise, published in its issue of September 17 a complete review of the business interests of the city, as well as of the State, for the crop year ending August 31. Notwithstanding the depression which existed throughout the earlier portion of the year and the low price of cotton, the total trade of Charleston for the year amounted to \$76,304,785, as compared with \$75,254,581 for the preceding year, showing an increase of more than \$1,000,000. There was a gain in the receipts of cotton of 70,000 bales, although the decrease in the price resulted in a decline of \$2,000,000 in the value of the cotton handled at that port. In the fertilizer business there was an increase of \$751,000; in the cotton goods trade \$830,000, and in the value of the manufactured products of the city the gain was \$1,154,000. The aggregate manufacturing business of Charleston, as given in detail by the News and Courier, shows a total of 432 industrial enterprises, employing 8166 hands and \$13,400,000 capital. The trade interests, especially everything pertaining to foreign business, indicate a broadening of the commerce of the city and of the influences that tend to the upbuilding of Charleston in the way of increased ocean steamship facilities and better railroad connections not only with Carolina, but with the West. In closing its summing up, of what the city has done during the year, the News and Courier says:

The advantages of Charleston as a manufacturing center have been clearly demonstrated, and there has been a steady growth of our manufacturing industries for the last ten years. Under an act of legislature the manufacturing industries established in this city are exempted from municipal taxation for a period of five years, and this fact should encourage the establishment of many new industries in the city. Some of the advantages which manufacturers would have here are an abundant supply of trustworthy labor, cheap raw materials, nearness to home and foreign markets and low freight rates.

The railroad situation in Charleston has improved during the past year, and the promise is that more desirable and extensive connections will be formed before the close of the present year. The fact has been demonstrated beyond question that Charleston offers superior facilities for railroads and steamships engaged in the foreign trade. The success of the Charleston Transport Line is assured, and there has been a steady growth in the shipment of Western grain through this port. The value in the export trade of Charleston during the last year was about \$1,000,000 in excess of the trade of the previous year, and there was a small but gratifying increase in the value of the import business. The South Carolina & Georgia Railroad has made new connections, which will give Charleston an equal standing with other competing communities in a large part of upper Carolina, and the ownership of the Georgia Railroad by the Louisville & Nashville system will inevitably benefit the trade of this port.

During the year but little was done for the improvement of the jetties at this port, but the work that was done by the government was so well done that the harbor entrances are steadily improving. This fact was made evident during the recent war with Spain,

when ships drawing nearly twenty-four feet of water came directly to the wharves of the city to be loaded with troops for Cuba and Porto Rico. Only three days ago one of the largest ships in the transport service of the United States government passed through the Charleston jetties under her own steam, drawing fully twenty-four feet. The advantages of Charleston as a point for the establishment of a direct mail service between the United States and our Spanish possessions have been so well determined that the government will probably select this port for such service. In addition, the large expenditures which have been made for the development of the defenses of the port show that the authorities at Washington regard this port as of the greatest strategic importance, and it is not too much to hope that future appropriations will be made for further improvement of the harbor and its approaches. But whether the government shall adopt this course or not, it is certain that the great railroad and steamship lines of the country are looking to Charleston as a desirable port for the transaction of a great foreign trade.

The indications are that the new year will bring a great deal of prosperity to this city. The credit of Charleston was never better, and the facilities for the transaction of business have been steadily improved.

Overcoming a Setback.

Gen. John Gill, president of the Mercantile Trust & Deposit Co., of Baltimore, who was recently in Savannah in connection with his directorship of the Savannah Construction Co., was interviewed by the News of that city, and said:

I believe we are going to have an era of prosperity in which the South will largely share. The country is ready for all forms of enterprise; it is prepared as never before to push its trade into the uttermost parts of the earth, and it has the capital and its industries established on such a basis that it can and will successfully compete with any and all nations wherever it goes. With the South's natural advantages it must partake in the progress and prosperity that is generally believed to be in the near future. Capital is ready to flow this way again, although there was a temporary setback due to the free-silver craze. That ignis fatuus of hard times is believed to have run its course and is expected to be soon relegated to the rear as an economic or political proposition without support enough to make it a dangerous theory. It is accepted that the craze is dying out, and, with that fear removed, the tendency of capital is to move freely this way to a section offering good inducements for safe investments.

General Gill is largely interested in the South, and has been instrumental in placing much capital in that section. He is a close observer in every department of activity, and his views will undoubtedly carry the weight of knowledge and conviction.

Punctured the Demagogue.

In his opinion confirming the referee's report ordering a reduction from \$2,500,000 to \$343,745.28 of the assessment on Mr. William Rockefeller's mansion at Mount Pleasant, N. Y., Judge Barnard, of the New York Supreme Court, said:

The assessor is proved to have asked for votes in his favor, because he, if elected, would put the tax on the relator and relieve the poor. He is proved to have said that he would drive the relator from the town by putting an unequal burden on him and by making his life unpleasant to him there.

This extract from Judge Barnard's opinion is illustrative of the spirit which animates much of the politics of the day. It is seldom that such an instance of demagogism is recorded in legal proceedings, but that does not diminish its significance. What objection the assessor had to Mr. Rockefeller, except that he was a man of wealth, does not appear, and the inference is that there were more votes of poor people in the Mount Pleasant neighborhood than of rich, and consequently that appeals to class prejudice were more potent as political material

than any other plan. On a much larger scale such a policy has been pursued in many parts of the country, but the Mount Pleasant incident should open the eyes of the people to the danger of permitting a demagogue to reach public office.

THE BIRMINGHAM IRON DISTRICT*

And Its Wonderful Progress in Iron and Steel Making as it Affects the Whole Country.

By James Bowron.

How strange it seems to realize that Birmingham, Ala., where I live, is today the third largest point of export of pig iron in the world—Middlesbrough, England, being the first, Glasgow, Scotland, the second, and Birmingham, Ala., the third. Within the eighteen months ending January 1 last there were exported from Birmingham 297,000 tons of pig iron to foreign countries. This iron went to England, Scotland, Wales, Ireland, France, Belgium, Holland, Germany, Russia, Denmark, Sweden, Spain, Italy, India, Japan, China and Australia. There is something very remarkable in the local conditions which will permit an inland city like Birmingham to ship pig iron in such a way to every part of the known world, and especially to the city from which I came, and which, up to the time of leaving England, was supposed to be and was undoubtedly the center of production of the cheapest pig iron in the world. The Middlesbrough furnaces draw their coke from a distance not exceeding thirty miles, their limestones about twenty miles, their iron ore a distance of six to eighteen miles, their pig iron not from the casthouses, because they do not use them, but from the pig-beds under the open sky, and run it down on the little narrow-gauge buggies to the wharves, where it is loaded on steamers. In spite of that we load our pig iron on cars in Birmingham and ship it 200 miles to Mobile, and then to every port of the known world. We ship it to every State and Territory in the United States, to Canada and Mexico. Why is it? We have not any better coal than exists in a dozen different places in America. We have no better ore than exists in a dozen different places. We have not got such gigantic bodies of ore lying on the surface to be scooped up by a steam shovel as in the Mesaba region; we have not got such ores as are to be found in the Gogebic district. Why is it we can do these things of which I have spoken? The answer is simple.

Assembling Raw Materials.

You may take a large-size map of the Birmingham district, a map on a large scale, take a straw hat like this and put it down on the iron ore, coal mines and blast furnaces, and cover it all up. Supposing you would consider these three fingers put together horizontally as representing, if you please, the top one, the carboniferous strata; the middle one, the sub-carboniferous, carrying the limestone, and the bottom finger the silurian measures, carrying red fossil ore. Then take an upheaval of nature, which makes an anticlinal which splits them open and thrusts them over, wash off the top of the iron with water and make a valley, and what have you got? A valley in the middle and three outcrops on either side, coal, limestone and the valley between for the railroads to run down the whole of the valley, and blast furnaces and mills everywhere where side tracks can be put in. When you consider the mileage which is involved in the assemblage of materials

*An address delivered before the American Foundrymen's Association, Cincinnati, Ohio, June 8, 1898.

for the production of iron in other parts of the world, whether it be the carrying of coke from the Connellsville region into Cleveland or Chicago, or whether you consider the mileage involved in the haulage of ore from Lake Superior to Pittsburgh, you will see the differences involved economically by turning to compare the haulage of ore in the Birmingham district a matter of six, eight or ten miles into the furnace stockhouses; the switching of coke a matter of one-half mile, simply having the coke ovens put out of the way of the blast furnace—when you consider that at the plant of Ensley, in the suburbs of Birmingham, for the purpose of illustration, we found it necessary that our friends, the Semet-Solvay Co. (which is putting down 120 by-product coke ovens, in immediate contact with the furnaces, and which will deliver its coke without railroad freightage of any kind, simply a conveyor into the stockhouse of the furnaces) should excavate the coal in order that the foundations should not burn away, then you may realize that standing on the top of the water tower, with one of the rifles with which we are making the Spaniards cringe today, you can put a bullet from the top of the blast furnaces into the ore mines; you can take a revolver and fire a bullet on to the coke ovens or to the quarries from which the lime is drawn. Look any way you please for a mile to a mile and one-half and we have everything needed to open out. In addition to this we must consider the ease with which the materials are worked.

The Ore Deposits.

I have spoken of the way in which the ore outcrops on either side of the valley. The bed of ore, which is contiguous, lies at an angle of about 30 degrees. It is opened at a height of about 400 feet above the valley, opened by stripping, working on the outcrop as far as may be desired, and from the first acre of ore which was ever opened in the Birmingham district, being at a point called Redding; the Morris Mining Co., which opened it for the Hillman estate, paid a royalty of twenty-five cents per ton, or \$14,000, for the ore taken from the first acre. I have seen that ore forty feet in thickness, top to bottom, worked by pick and shovel. That is, however, entirely exceptional. The average thickness of the ore as worked today is about ten feet, and that is a very convenient thickness of working, because if you get above that it makes the timber heavier where timbers are used in mining. This ore you open at the outcrop and run your cross-headings right and left along the axis or longitudinal plane of the mountain. As soon as you have excavated the ore tributary to that opening you drop down fifty to 100 feet and repeat the operation, drive a fresh chute, take all the ore above you, work it out and drop down seventy-five to 100 feet again. The result is this, that while I do not know what other people are doing, nor desire to dwell on what our own company is doing, but because the figures come more readily to my mind—while we are taking out about 1,600,000 tons of ore per annum, I looked at the map yesterday, and the operation seemed like a scratch on the surface of the mountain. One might consider we have worked out, perhaps, an amount above water level equivalent to one-half mile in length of the lead of the ore. Our own company has twenty miles, and as we have been twenty years working the one-half mile, we shall be 400 years working the rest. Foundrymen who are accustomed to use Alabama iron in their mixtures need not be in apprehension of a cessation in the supply for 400 years, and by that time we may have found a way to make castings last indefinitely. It has become a very interesting question to us in this country within the past year

or two as to what we are to do with our manufactured goods in the iron trade. The constant growth and spread, the growth in capacity and the spread in every direction of our products has led more or less in other trades, and I presume it must be somewhat the same thing in the foundry business, to the getting into each other's way and treading on each other's toes. We have looked with satisfaction on the growth of an export business. Certainly twenty years ago one would never have dreamed of it. Twenty-five years ago the production of pig iron in the State of Alabama was 11,000 tons. Last year it was 840,000 tons—a considerable growth in twenty-five years of time. The expansion of an export business, as it is needless for me to say to an audience like this, lies in the low plane of cost which has been attained. When I first sold No. 3 foundry iron in 1879 I remember the first order I booked was for a pipe foundry, to go into cast-iron pipe, and I sold it at \$17, delivered at Louisville, and the same iron today would be delivered at half the money, \$8.50. When we remember that it takes the same amount of ore to make the ton of iron as then, roughly and broadly and generally speaking, it requires the same amount of coke, it is a serious question and an interesting one. Where has the economy come in? On the output of the company I serve the scaling of prices represents \$17,000 per day, and as the furnaces run 365 days per year that represents nearly \$6,500,000 per annum our product has been scaled in value in twenty years.

Reducing Costs.

That economy has come partly by the washing of the ore, putting less silica in the top of the furnace and less slag at the bottom; partly by the washing of the coke, so that it contains less silica and requires less flux, and wastes less calories in the furnace, and by the expansion of production by the equipping of a furnace with engines to drive not at four to seven and one-half pounds pressure, but twelve, fourteen and sixteen pounds to the square inch, so that we get, not forty-five tons per day, as was my first experience, but as high as 250 tons for an every-day product. These are the sources of economy, together with the universal trend of co-operation, the putting of business to business and bringing greater outputs and greater masses of material under one management and one general expense. This action, it is needless to say, is on the same principle that the foundrymen are giving so much attention to in governing the business by the chemical laboratory, which has played such an important part in the production of pig iron. The blast furnace gas which in Scotland twenty-five years ago used to flash out into the open air, is now corraled, and the ammonia, tar, naphtha and creosote extracted and sold therefrom. It is supposed that the Scottish blast furnace owners make more money from the by-products than from the pig iron which they sell. That, of course, cannot be obtained in this country, where we use not raw bituminous coal, but coke. But what we can do, and what is being done, to facilitate economy in the production of pig iron, is to erect facilities for extracting by-product, not from the blast furnace gas, but from the coke oven gas. Now with this constant march of economy and constant expansion of product, we have got to the point where we need foreign markets, and we are taking them very rapidly, not only in iron, but in steel, and while this is a meeting of foundrymen, very few of whom produce or use steel, still the two materials are becoming correlated together more and more every day. This is indeed the age of steel.

It is a wonderful thing to consider, and a very serious one for producers of pig iron to consider, that whereas the consumption of iron as steel has increased 1,500,000 tons per annum in the last ten years, the consumption of iron as iron in elementary form has decreased 1,000,000 tons per annum. That is one reason why a good many blast furnaces are standing idle today. It is not the only reason. All nations are subject to times of delusion and wild ideas. Those who have heard the gifted American lecturer, George R. Wendling, on "Popular Delusions," must remember his vivid descriptions of the South Sea bubble and various other phantasmagoria. A singular delusion swept over this country some years ago which caused a great many people, apparently sane, sober and in right mind, to believe that by the construction of a blast furnace they could turn a cabbage garden or some vacant pine land into an important boulevard of a city, the lots of which were worth at least \$1000 per front foot.

Furnace Booming.

So it has transpired that there has been in this country a plethora of blast furnaces, and in the last ten years many of you have derived an advantage at the expense of the creditors of the blast furnaces which have supplied you with pig iron below the cost of production. And it lies well with you to seriously consider the fact that those days have passed and that creditors, as a rule, however lenient, indulgent and tolerant, come to an end of desiring to throw good money after bad, and to maintain insolvent furnaces in the hands of assignees and receivers solely for the friendly purpose of supplying the members of the American Foundrymen's Association with pig iron below cost of production. * * * The popular delusion about the construction of blast furnaces, necessarily involving a fortune, is responsible for a good many idle furnaces. But the switching off of so large a part of the world's consumption from iron into steel is responsible for a great deal more, and that is a permanent change, and one not only permanent, but increasing. To what extent steel castings may take the place of iron I am not competent to offer an opinion; but as I am not speaking on that subject, but for the Southern iron district which today furnishes, I suppose, half of the foundry irons made in the United States, it is a very serious thing, and it is proper that in drawing your attention to this general outline of the district and its situation I should refer to the question of steel. I remember it says in the good book that although Haman sat at a banquet of wine with the king and the queen, he answered: "All these things avail me nothing, so long as I see Mordecai sitting in the gate." He was the fly in the pot of ointment. It avails us nothing that we make cheaper foundry iron than any other concern in the world, if we cannot get money enough to pay the salaries of the officers on the first of the month and creditors send their boys around with all sorts of little duns. It therefore becomes necessary to divert the product of the Southern district from foundry iron into steel. I remember when going to St. Louis in 1879, to sell foundry iron there, a gentleman said: "What! Tennessee? Alabama? No, no, no. Could not think of such a thing. Would not think of using anything in my mixture other than Hanging Rock charcoal or Glengarnock No. 1." Now we send iron to Hanging Rock and to Glasgow in the place of Glengarnock! I used to see in some of the writings of our Eastern friends, with headquarters in New York, in the journals there, that it was true a little iron was coming, but it would not make any difference—it was only a drop in the bucket—came as a sample—could

not afford to send it there—it was an experiment. I have heard of boys whistling to keep their courage up in going through a graveyard; but whistling kept up and the iron kept up, and the next thing we hear was: "Of course these people are putting in their iron, but it is an inferior quality and would not sell as well as other irons." By degrees it got to command the same price, and then they said: "The iron is all right enough, but they are losing money and cannot afford to send it there, and there will be no more of it." We did not shut up, but built additional furnaces and made more iron, and so it kept on. The next thing we heard was: "Of course it is all right for the foundry business, but it is a high silicon iron, and will not do for any mixture where strength is required." The next thing, out of the basic iron we make for the steel makers in every part of the United States, we see the foundrymen come to us, saying: "Give us of your basic iron, that we may use it instead of charcoal iron to put strength in our mixture." The next thing we heard from our critical friends as to Southern iron was: "Of course they may use it in a highly siliceous mixture or for strength, but for open-hearth steel it will not do; they may take a little and mix it with Northern iron, but it is not an iron to make steel of." It looked for a time as if there was a little bit of truth in that idea, because the Southern iron is siliceous, too much so for a basic open-hearth process, the phosphorus too high for acid process, either Bessemer or open-hearth; but by the discovery of limitless beds of dolomite, in one of which I could show you within six miles of Birmingham a face forty feet deep and extending as far as you would want to run, a dolomite with less than 1 per cent. of silica, which is not only suitable for basic additions, but for furnace repairs, and is also suitable for use in the blast furnace, and we carry a sufficient burden of it to keep down the silica. We are able to make basic iron with it and make it down to 0.02 per cent. of silicon in the iron in the blast furnace, and on that account I say we can do anything required for the manufacture of steel. We have, therefore, run one blast furnace continually for three years making iron for open-hearth basic steel works for such concerns as Carnegies, Illinois Steel Co., Park Bros., Jones & Laughlin, A. & P. Roberts, Cleveland Rolling Mill and others. What remains for us to say, as we are saying now, "If such things be done in the green tree what shall be done in the dry?"

Southern Steel.

Let us make our own steel, cease to make pig iron, and ship it to every part of the world—ship it to terra incognita, as well as to such distant parts of the world as Connecticut, Cleveland and other far-off places where we have to pay vast sums to intermediate people called "agents" to go around and see consumers. Yet if you would only come down to Birmingham we would pension the agents and give you all free sites for your works! But it is a fact that within the next thirty days, undoubtedly, the papers will be signed which will divert within a year, probably one-half of the iron which is now being supplied from the Birmingham district to the founders of the United States, into the steel works which will be there constructed, and there will be a large diminution in the supply of cheap pig iron which is being offered to you from the Birmingham district, unless such a little incidental modicum of profit as twenty-five to fifty cents per ton can be added to the price as to justify us in putting in more furnaces with the large expenditures which that involves. Now then, in conclusion, I want to draw your

attention to this—without in the slightest degree working anybody for the moving of works, as that is a thing I do not believe in; a business which is not worth running where it is as a rule is not worth moving. This business of employing industrial agents to run around the country begging people to remove their plants to other places is all humbug, but there is this consideration which is open to your minds and which I offer to you. Suppose you are making stoves or iron pipe, or radiators or sugar machinery, or any other kind of material which can be exported to foreign countries, it becomes a very serious question whether it is not worth while to look into the situation of the South with a view to establishing a branch of your industry with especial reference to an export business. Now the distance from Birmingham to the seacoast is only 268 miles. The railroads are liberal. We can reach Pensacola by the Louisville & Nashville system, Mobile by the same, and by a combination of the Southern Railway and Mobile & Birmingham, and by a combination of Alabama, Great Southern and Mobile & Ohio. There is easy transport and the roads are liberal in their rates. Birmingham is situated 602 feet above tidewater, the weather is pleasant, the climate benign. I lived thirteen years in Nashville, and now 209 miles further south, in Birmingham, and can state the climate is milder in Birmingham than in Nashville. Latitude does not count; the elevation does. We have 600 feet of elevation, and are near enough to the Gulf to obtain our share of the influx of the cool air which sets in all around the United States to take the place of the vast mass of heated air rising from the great interior of our continent throughout the hours of daylight. So there is always a movement of air which makes it a pleasant place to live in. I say, speaking of railroads, with a fall of 600 feet against 268 miles you see there is an average fall of two and one-quarter feet to every mile of railroad from there to tidewater. That being in favor of the load, enables a railroad to make extremely low rates, and they carry pig iron and heavy castings to the Gulf for export for \$1 per ton. Now, then, when you consider the movement of the cotton crop of the United States from Southern ports, when you remember that that movement this year was over 10,000,000 bales, and was almost entirely confined to the ports, say four-fifths of it, from New Orleans to Norfolk, inclusive, when you can go from Birmingham to Mobile and Pensacola for \$1; Port Royal, Savannah and Charleston, \$1.75; Norfolk, Va., for \$2.21, then you have marvelous opportunity for shipping your heavy iron goods in connection in some cases with cotton and in others coal and coke, to foreign countries. Why, the other day we shipped a cargo, for example, of pig iron with coke on top of the iron from Pensacola direct to Yokohama for \$5 from Pensacola, a through rate of \$6.

With the enormous growth of manufacturing, with the continual cheapening of the cost of your castings, with the results you are obtaining from the comparing of notes in your foundry associations, not only this one, but also in your local associations, from the application of economic chemistry to produce the best results, I insist that you, as manufacturers or iron goods, are getting into the same position as we who are producers of pig iron. You are getting to the point where you are able to compete with every other foreign nation where the lanes of ocean commerce will enable you to obtain transportation and to move your goods, and I do not know any place in this particular line where a plant can put itself in immediate physical juxtaposition to coal or

coke, limestone, pig iron, with half a dozen railroads, with nominal rates of freight to the seacoast for export, and with a river which is now navigable to forty miles from Birmingham, and which, in the course of a few years more, will enable heavy products to be carried to Birmingham or Mobile at a cost not exceeding sixty cents per ton, except in our section.

A STRONG IRON MARKET.

Active Demand from Europe for Alabama Iron.

[Special Cor. Manufacturers' Record.]
Birmingham, Ala., September 20.

The iron market had a slight advance the past week—not of moment, though—and only indicating a hardening tendency. An intimation was given to your correspondent of a still further advance, possibly this week, certainly during this month. The advance of ten to twenty-five cents in No. 3 foundry was followed by a corresponding advance in the other grades, and the week closes with the market firm and a hardening tendency. There have been sales of No. 1 foundry at \$8, No. 2 foundry at \$7.75. Gray forge has been selling for several days past at \$6.65, and in some instances at \$6.75. Mottled has been selling at \$6.72½, and the soft grades have been advanced twenty-five cents. At the close of the week one order came in for 5000 tons of No. 4 foundry at \$6.50, which was promptly declined, and \$6.65 was quoted as bottom. More than half the sales the past week were to the export trade, and for the last three to four weeks fully two-thirds to three-fourths of the sales have been for that account. The cultivation and development of that trade have been the salvation of this district, and the business energy and acumen that foresaw the results that would follow a hewing to that line is worthy of all praise. Transactions were not so large the past week, but that was because the furnaces are not courting large orders for nearby or long-time deliveries. For the first their sales closely approximate production, and for the latter the situation is growing so strong that there is very little temptation to sell for long-time deliveries on basis of current values. The short supply of some of the grades continues, and there is more or less swapping around to meet requirements. There is a very poor prospect for any increase in production. A blowing-in of one furnace today is followed by the blowing out of another tomorrow, so that the thing about evens itself. Inquiries on this line brought out the information that the requirements of furnaces now in blast were fully up to capacity to supply in coke and coal. The improvements in furnace production are vividly illustrated by the statement that the Tennessee Coal, Iron & Railroad Co. obtains from ten stacks the amount it formerly got from seventeen stacks, and the Sloss gets more from three stacks than it used to get from four stacks. The production of coke has not kept pace with improved furnace production, and there is practically no prospect for increased iron production until the production of coke is increased. There are some furnaces in the district that are idle, and they are likely to remain so, as to modernize them amounts to a rebuilding of them from foundation to keystone and inside and out. As dividend-payers the old-style furnaces are back numbers. Stocks continue to decrease, and as the month wears on the probability of this decrease grows greater. One interest has issued instructions to its agents to take no order for more than one carload except subject to confirmation, and to seek no business except from regular customers. Of course, this means they are so

closely sold up that they are afraid to add to their line of deliveries. Mr. Jas. Bowron, first vice-president of the Tennessee Coal, Iron & Railroad Co., said to the writer: "Since I have been connected with the American iron market I have never seen it in such a strong position as it now holds." Some large interests have been holding off, and until the close of the week manifested no interest in the market. Their indifference was the opportunity of the foreign buyers, and they availed themselves of it and took their places. With only moderate buying the market has not only held its own, but gained an advance. It is not, therefore, unreasonable to conclude that when they come in to buy, which they must do, an additional advance will be asked, for the market is sensitive to a moderate demand.

In the line of improvements a fine Masonic temple is marked out at the corner of 21st street and Second avenue, but nothing will probably be done about it until next spring. Then we are to have another barrel and stave factory as soon as machinery can be purchased and installed. The promoters are desirous of corresponding with advertisers in the Manufacturers' Record who deal in the necessary machinery. They can address E. L. Peuraddocke, 15 South 20th street.

The contract for building the branch road of the Illinois Central Railroad from Aberdeen to the Walker county coal fields having been let, speculation is rife as to ultimate intentions. There is no risk to one's reputation as a prophet to predict this place as its objective point. It is not coming within fifty miles of us without settling down among us and securing the large tonnage that goes from here by other lines right into the Western territory of the Illinois Central Railroad. You can set it down as more than a probability that the Illinois Central Railroad is heading for Birmingham.

J. M. K.

New York and Philadelphia Iron and Steel Markets.

[Special Cor. Manufacturers' Record.]

The iron trade is remarkably strong, considering the moderate amount of business that has been transacted during the past week. The rush for crude material, such as pig iron of all kinds and billets, has subsided. A fair demand for finished products has been maintained since last Wednesday. Since Monday buyers and constructing engineers have been heard from concerning projects that will call for a very large amount of material. Railroad requirements have been heard of also during the past week that indicate the approach of a storm center. Shipbuilders will, of course, be constant and heavy buyers. Rolling stock will be ordered in increasing quantity during the coming year. General machinery and agricultural requirements, in view of the phenomenal crops, will be of an exacting nature. Capacity is temporarily oversold in several lines, but manufacturers are beating all records, and before winter merchant steel production will be materially increased.

Billets are \$16 at mill and \$18 at Eastern points, but consumers count on better quotations. Merchant bars are 1.10 for common, 1.15 for refined, 1.25 to 1.35 for special makes. Nails have advanced five to ten cents. Sheets, pipes and tubes have all hardened within a week. In ordinary lots, plates cannot be had within a dollar a ton of a week ago, and the same is true of angles, beams and channels. Steel rails hang around \$18, but a sharp demand might make a difference. Old iron rails are active at \$12 to \$12.50.

Will consumers wait awhile or cover soon is a question which cannot be answered. Production of pig has taken an

upward turn, and with a booming year in sight will probably continue to increase until it is indisputably clear that too much is being made. Some people profess to see strong evidences of a dearth of steel within a year, but a great deal may happen in a year.

It is a pleasing prospect, of course, to dwell on such possibilities. Should railroad building and the re-equipment of railroads be vigorously entered upon, it would be difficult to forecast probabilities. Just now iron and steel makers are enjoying moderate margins, and have prospects of continued profitable occupation, and that will suffice for the present.

Ginning and Power Machinery.

Mike Brown, president Brown Mercantile & Banking Co., Barnwell, S. C., writes the Manufacturers' Record as follows: "I want estimates on nineteen 100-horse-power engines and boilers, put up complete, ready to run; also seventy-six 70-saw gins, with latest improvements for handling seed cotton. I want plans and specifications for nineteen ginhouse plants of the most improved style. I am going to build these if possible in time for next season, with cylindrical presses. I am doing great business with my round-bale plant this season."

Shipbuilding at Sparrow's Point.

Preparations intend to be made to open the shipbuilding department of the Maryland Steel Co. at Sparrow's Point, as noted several weeks ago in the Manufacturers' Record. Andrew G. Wilson will be the superintendent and Rogers Wilson, his son, will be assistant superintendent. A. S. Cheesebrough, a noted designer of vessels, has been engaged, and Andrew Baird will be placed in charge of the mold loft. All of these officials have been with the Harlan & Hollingsworth Co., Wilmington, Del. Robert Cochran, formerly connected with the Columbian Iron Works, Baltimore, has been appointed foreman of the construction and hull department.

For Cape Charles Route.

The fleet of steamers plying in connection with the New York, Philadelphia & Norfolk Railroad on the Cape Charles route across Hampton Roads has received an addition in the "Cape Charles," which has just been completed at Chester, Pa. The vessel is 233 feet long and can carry 400 tons of freight and 500 passengers, and has a speed of eighteen miles an hour. She will be the largest of the vessels in this service, and is fitted up with the latest appointments.

Coaling Stations in the South.

As a result of the inspection of the special board appointed by the government to determine the need of additional coaling stations for the navy, a report has been made favoring several on the South Atlantic and Gulf coasts. It is estimated that the cost of every station will range from \$100,000 to \$200,000, and that they will have a capacity of from 5000 to 20,000 tons of coal, with the necessary machinery for hoisting it and conveying it to vessels.

A Large Collier.

One of the largest sailing ships which ever entered the port of Baltimore will carry coal to San Francisco from the port named. The vessel is of steel, and is a four-masted ship. She will carry 4000 tons and draws twenty-six feet of water when loaded, being 330 feet in length. The ship was built at Bath, Me., and this is her first trip. She is named the Erskine M. Phelps.

LOW PRICE COTTON AND ITS OFFSETS.

How the South May Find in Modern Improvements and Diversified Agriculture Blessings to Counterbalance the Low Price of Cotton.

The Selfish Work of Middlemen Who Live on the Planter in Opposition to Diversified Crops and Modern Methods in the Cotton Business.

[From New York Journal of Commerce, September 17.]

Mr. Richard H. Edmonds, editor of the Manufacturers' Record, Baltimore, is in the city for a few days, and in the course of conversation with a representative of this journal yesterday said:

"I do not think that there is any ground for hoping that we shall ever again see high prices for cotton, except, possibly, under exceptional circumstances, such as a crop failure, and then only for a brief period of not over a year or at the most two years.

"A general range of high prices such as the planter is always looking forward to as a possible future blessing has in all probability forever passed away, because there is no likelihood of planters ever combining to such an extent as to make any material decrease in acreage. Production seems destined to constantly keep a little ahead of consumption. As much as we of the South may regret this era of low prices, it is as well to face the situation squarely and see what can be done to offset the disadvantage of low prices, or, in other words, to find the disguised blessing; for there must be at least something to set against this disadvantage. I believe it to be the duty of every man, and especially of every Southern man, who has any interest in the progress and prosperity of the whole South and of all classes, to study the situation and to endeavor to the utmost to develop the blessings, however small they may at first appear.

"In the first place, we must recognize that the practical control of the world's cotton supply is essential to the upbuilding of the South, and that this can only be maintained by producing cotton at a cost so low as to prevent the large development of cotton-growing in other countries. Two or three years of high prices, if they could be had, would, it is true, put a great deal of money in the hands of Southern farmers, but this would so stimulate cotton-growing abroad as to make the world less dependent upon us for its future supply of cotton. This, however, would not by any means be the main disadvantage on that side. The worst result would be that the tendency to diversified farming, to the production of grain, provisions and all other food supplies, which is rapidly spreading because forced upon farmers by the small returns from cotton, would be checked, and the mass of farmers would again devote all their attention to cotton. It is needless to say that no one-crop country can be broadly and permanently prosperous. Diversity is absolutely essential to the best interests and to the general prosperity of all classes.

"Prior to the war Southern agriculture was largely directed by men of broad views and of great executive ability. The slaves did not have to decide what to plant nor how to market the crop. One man might direct the work of a thousand. He saw that to produce cotton at a profit, even when cotton was selling at from twelve to fifteen cents per pound, it was necessary to raise all the food supplies for man and beast. Under that system the South increased in wealth more rapidly than any other agricultural country in the world ever did, the value of Southern property, according to the United States census reports, having increased between

1850 and 1860 from \$2,800,000,000 to \$6,300,000,000, a gain of \$3,500,000,000, against an increase for the same period in the New England and Middle States combined of only \$2,400,000,000. This prosperity was not due to slavery, but was in spite of slavery's drawback, and was a result of the full development of a well-rounded economic system under which the South raised nearly all of its food supplies and made cotton a surplus crop. After the war high prices for cotton turned the energies of farmers almost exclusively to cotton, thus forcing the South to buy annually over \$100,000,000 of Western corn and provisions. The negro farmer, no longer having anyone to direct his work, and with an eye single to what would bring anywhere and any day the ready cash, abandoned everything but cotton, and the majority of the small white farmers did likewise. Under this system they steadily year by year grew poorer, for everything they made was eaten up by the high prices paid for provisions and the exorbitant charges for advances made by factors and commission merchants. In the South the cotton middleman, whose name is legion—the factor, the commission merchant, the country buyer, the sampler, the compress owner—have all taken toll out of cotton and all lived on the farmer, getting the lion's share of the profit. Very naturally, as a class they have been bitterly opposed to any change in present methods, just as the factors bitterly opposed the raising of bread and meat at home. The commission merchant who advanced credit to the planter on a crop lien and then supplied him at a high price with Western corn and bacon, New England calico and Western agricultural tools, could not, unless an unusually broad-minded man, have been other than opposed to the farmers raising their own food supplies. The farmer who ceased to devote all his time and attention to cotton thereby ceased to be a good customer for Western provisions, and in proportion as he increased in financial independence became less dependent upon the commission merchant for costly credit purchases. Of course, many merchants were far-sighted enough to look beyond the present and to see that agricultural diversity meant more general prosperity, even though it might cause a loss of trade in handling the \$100,000,000 of Western stuff which was annually bought by the South. This was only one of the innumerable and ever-arising cases where the individual must temporarily suffer for the general good.

"But, notwithstanding the opposition of the mercantile interests, more generally shown in acts than by words, the downward tendency of cotton compelled farmers to turn their attention to other crops, and now the South is more nearly self-supporting than at any time since the war. Even now, however, the Central South is not yet raising as much corn or as many hogs as it did forty years ago, notwithstanding the fact that in the meantime population has largely more than doubled.

"If the South will make the best of the situation it will find the following compensating advantages to partly, if not wholly, offset low prices:

"1. A permanent control of the world's cotton trade.

"2. Steadily-increasing agricultural diversity and prosperity.

"3. A very rapid gain in cotton manufacturing.

"4. By reason of these last two conditions, fewer middlemen between the producers and the consumers.

"The temporary loss to the middlemen who now live on the farmer will cause them to turn their attention to productive industry to the betterment of all classes.

"When cotton was ten cents per pound a difference of one cent per pound between the cost to a New England mill and a Southern mill was only 10 per cent.; but with cotton at five cents a pound this difference of one cent becomes 20 per cent. against the New England mills, and they find the margin so great that they are being forced South. Then there are many changes and improvements in cotton handling which can be introduced to lessen the burden of charges on the cotton between the planter and the manufacturer—burdens which now fall almost entirely upon the grower. The improvement in baling which for years has been urged upon the South will in itself be a great step forward, and the round-bale system alone, taking the cotton at the gin, putting into a bat and winding lap by lap with one compression only, thus doing away with double compress charges and doubling handling as now, reducing insurance and in many ways saving expenses, which now absolutely fall upon the farmer, seems to me to be the greatest revolution ever introduced into the handling of any staple crop, and that to the benefit of the man who produces the crop. One of the leading cotton-mill men of the South, Mr. T. W. Pratt, president of a large mill at Huntsville, Ala., made a very careful test last year by operating a round-bale compress and then using the cotton in his mill. He took 200 bales to his mill and followed the whole lot into the minutest detail from its landing at the mill to the finished product, and I had a letter from him saying that he not only saved the farmers \$1.75 per bale in the cost of ginning their cotton, but that his mill could, he found, afford to pay \$2 a bale more for the round bale than the old square bale cotton, thus making a difference of \$3.75 a bale. What this means on a 10,000,000-bale crop can be readily seen. Some estimate the total difference in cost of ginning and in higher price for cotton at considerably over \$3.75 a bale, but I am using the very lowest authentic figures which have come to me. So much impressed with this system was Mr. Pratt that he has just completed at Huntsville a plant built by the American Cotton Co., which, while in New York a few days ago, he told me will be the largest gin plant in America. I am not certain that this is correct, but at any rate it will gin and compress ready for market 300 bales a day. Now, if the South will turn its attention to all such modern improvements, of which this is only an illustration, develop still more rapidly the cotton-oil industry in order to create a market for cottonseed, build up its cotton-manufacturing industry, which will employ its idle labor and create a home market for diversified agricultural products, and fully utilize the great phosphate discoveries in Tennessee and Florida to reduce the cost of fertilizers, it will find that behind the apparent affliction of low prices are hid some blessings which may lead to a broader and more diversified advancement of every interest, agricultural, manufacturing and mercantile, and thus to greater and more widely diffused prosperity than it has ever before known. Such is the situation as it appears to me after years of very close study of everything pertaining to the South's upbuilding."

TEXTILES.

[A complete record of new textile enterprises in the South will be found in the Construction Department.]

Correspondence relating to textile matters, especially to the cotton-mill interests of the South, and items of news about new mills or enlargements, special contracts for goods, market conditions, etc., are invited by the Manufacturers' Record. We shall be glad to have such matter at all times, and also to have any general discussion relating to cotton matters.

Some Advantages of the Cylindrical Lap Bale.*

By Wm. C. Lovering, of Boston.

For a hundred years or more American cotton has been baled in substantially the same manner. There has been some improvement in cultivation and ginning, but almost none in baling.

Attempts have been made from time to time to effect a change, but beyond compressing the bales in huge compresses for purposes of transportation, cotton comes to our mills today in precisely the same shape that it did seventy years ago. It is exposed to damage by fire, water and dirt, and is subject to theft at the compress and in transit. The manufacturers get nothing better than they demand, and they demand nothing better than they get, and so the old system has prevailed.

But at last the manufacturers have roused themselves, and demand that their cotton shall be delivered in good order and at net weight. The old bale is doomed and the old methods of marketing cotton must give way to the march of improvement.

Invention has touched with its magic wand every machine and every process in the cotton mill until the product is increased and cheapened to a marvelous degree.

Not until comparatively recently has much thought been given to the cotton bale itself. Several bales have appeared in the market, all of which are an improvement upon the old style of bale; each has its friends. Anything that tends to break away from the antiquated hooped bale is welcomed by the manufacturer. Inventive genius has at last brought forth the perfect cotton bale in the form of the round-lap bale. It is practically a condensed breaker lap thirty-six inches in length and twenty-two inches in diameter, weighing about 260 pounds. The weight of the lap is about thirty-two ounces to the running yard.

When the American Cotton Co. put out its first bales they were not entirely satisfactory, owing to the fact that the cotton was unduly compressed at the core, and some difficulty was found in unwinding the last part of the bale. This has been entirely and absolutely overcome, and the bales now unroll to the last layer without the least hindrance. All who have used the later-made bales give their testimony to this. But with the advent of the 36-inch lap bale new advantages have been discovered. In fact, the 36-inch bale was made to meet the wants of the manufacturers. The new bale can be placed directly upon the apron of the lapper, discarding the automatic feeder. There is no need to mix the cotton in the bin previously, as all necessary mixing can be obtained by placing two bales of different grades of cotton on the same apron, and the laps that are made on the breaker lapper can be mixed again by placing three or four laps made from different grades directly upon the intermediate lapper, and this same mixing process, if desired, can be continued on the finisher or even lapper. This insures an absolutely

*Read by Mr. William C. Lovering before the Arkwright Club, of Boston, Wednesday, September 21.

regular mixing, such as cannot be obtained by simply opening a number of the old-style bales and throwing the cotton up into the bins in a hap-hazard way. The laps that come from the breaker lapper will be found to be far more even and regular in weight than those that are made with the automatic feeder. Indeed, it is not unusual to find the ordinary breaker lap made under the old system vary in weight 100 per cent., whereas the laps made directly from the cylindrical lap bale will hardly vary more than 20 per cent. The bale weighing, as it does, only about 260 pounds, is easily handled at all points, and especially in the picker-room, where one man can place the bale

low will show the results at the different stages. It may be said, however, that the cotton was not exactly the same in both cases, but was as nearly the same as could be obtained. In the case of the lap bale there was less loss in fly and picker waste than in the old bale. This was due to the fact that in the process of making the cylindrical bale a great deal more of the seed and dirt is taken out than is the case in making the old-style bale. In fact, the cotton after it comes from the gin passes through a trunk with dirt pockets and onto a condenser cylinder the same as in a picker. Owing to the less loss in the case of the lap bale, the weighings will be found to be slightly heavier.

COMPARATIVE TESTS MADE WITH THE AMERICAN COTTON CO.'S LAP BALE AND THE REGULAR BALE, OLD STYLE.

Six sizings, two yards, each of new lap bale on single rigid beater lapper.

29	ozs.	29	ozs.
28½	ozs.	28½	ozs.
27½	ozs.	29½	ozs.

Greatest variation two ounces.
One beater.

Breaker lap, six sizings of old-style bale, automatic feed, one hinge beater and two rigid beaters and doubled four on intermediate with one rigid beater.

30½	ozs.	30	ozs.
28	ozs.	29	ozs.
30½	ozs.	28	ozs.

Greatest variation two and one-half ounces.
Four beaters.

Finisher lap made by running four breaker laps on evenner lapper, one pin beater.

28	ozs.	28½	ozs.
29	ozs.	29	ozs.
29	ozs.	28	ozs.

Greatest variation one ounce.
One beater.

Finisher lap made from running four breaker laps on evenner lapper, one pin beater.

28½	ozs.	27½	ozs.
28½	ozs.	27	ozs.
28	ozs.	27½	ozs.

Greatest variation one and one-half ounces.
One beater.

New Bale.
Card Silver, Twelve Sizings.

75	grains.	76	grains.
75½	grains.	75½	grains.
75	grains.	74½	grains.
77	grains.	75	grains.
75½	grains.	77	grains.
74½	grains.	77	grains.

Greatest variation two and one-half grains.

Old Bale.
Card Silver, Twelve Sizings.

76½	grains.	75	grains.
74½	grains.	74	grains.
75	grains.	73½	grains.
74	grains.	74½	grains.
75	grains.	73½	grains.
75½	grains.	75	grains.

Greatest variation three grains.

First Drawing.
Six into One, Twelve Sizings.

72½	grains.	74	grains.
73	grains.	73	grains.
73	grains.	75	grains.
74	grains.	73	grains.
73½	grains.	73	grains.
74	grains.	74½	grains.

Greatest variation two grains.

First Drawing.
Six into One, Twelve Sizings.

72	grains.	72	grains.
71½	grains.	72½	grains.
70½	grains.	71½	grains.
70½	grains.	72½	grains.
72	grains.	71	grains.
71½	grains.	70½	grains.

Greatest variation two grains.

Second Drawing.
Six into One, Twelve Sizings.

66½	grains.	67½	grains.
68	grains.	66½	grains.
67	grains.	66½	grains.
67½	grains.	67	grains.
67	grains.	66½	grains.
67	grains.	67	grains.

Greatest variation one and one-half grains.

Second Drawing.
Six into One, Twelve Sizings.

66	grains.	65	grains.
65	grains.	66½	grains.
64½	grains.	65	grains.
65	grains.	64½	grains.
65½	grains.	65	grains.
64½	grains.	65½	grains.

Greatest variation two grains.

Third Drawing.
Six into One, Twelve Sizings.

66½	grains.	66	grains.
67	grains.	65½	grains.
67	grains.	66	grains.
65½	grains.	65½	grains.
65½	grains.	66½	grains.
65½	grains.	65½	grains.

Greatest variation one and one-half grains.

Third Drawing.
Six into One, Twelve Sizings.

62	grains.	61½	grains.
63	grains.	63½	grains.
61½	grains.	63	grains.
62	grains.	62½	grains.
63	grains.	62	grains.
61½	grains.	62	grains.

Greatest variation two grains.

Slubber Roving.
Twelve Sizings, Twelve Yards Each.

100	grains.	99½	grains.
99½	grains.	99	grains.
100	grains.	99	grains.
99½	grains.	100	grains.
99	grains.	99½	grains.
99½	grains.	99	grains.

Greatest variation one grain.

Slubber Roving.
Twelve Sizings, Twelve Yards Each.

97	grains.	96	grains.
96½	grains.	96½	grains.
96	grains.	96	grains.
96	grains.	95½	grains.
95½	grains.	96½	grains.
96½	grains.	97½	grains.

Greatest variation one and one-half grains.

Fine Speeder.
Twelve Sizings, Twelve Yards Each.

29	grains.	29	grains.
29	grains.	28½	grains.
28	grains.	28	grains.
28	grains.	28½	grains.
28½	grains.	29	grains.
28	grains.	29	grains.

Greatest variation one grain.

Fine Speeder.
Twelve Sizings, Twelve Yards Each.

27½	grains.	27½	grains.
28	grains.	27½	grains.
26½	grains.	27	grains.
27	grains.	28	grains.
27½	grains.	28½	grains.
27½	grains.	28½	grains.

Greatest variation two grains.

Yarn spun from new bale, having received only four doublings on the lapper, with only two beaters.

Number.	Breaking strain.
23.25	102 pounds.
22.22	96 pounds.
22.72	94 pounds.
22.72	100 pounds.
22.22	98 pounds.
22.72	103 pounds.

Av. 22.64 Av. 98.63

Yarn spun from old bale, having received sixteen doublings on the lappers, with five beaters in all.

Number.	Breaking strain.
23.90	80 pounds.
25.	75 pounds.
23.25	78 pounds.
25.	73 pounds.
23.25	80 pounds.
25.	68 pounds.

Av. 24.21 Av. 79

directly upon the apron. It will run for a long time before replacing.

Experiments have been made with placing the cylindrical lap bale directly on the intermediate lapper, and four of the laps that come from this lapper were placed on the apron of the finisher or evenner lapper, from which a more even lap was made, and the subsequent results obtained were better and evenner and more satisfactory every way than were those from the old bale with the breaker lapper, feeder and all. In the one case the cotton was treated by only two beaters, while in the other it was treated by five beaters and an automatic feeder. The table be-

While it will be observed that the greatest variation is generally less in the case of the new bale, it will also be observed that the weighings run more nearly uniform in the case of the new bale.

It hardly admits of a doubt that sooner or later the old bale will have to go. Manufacturers seeing the advantages of the lap bale will make haste to adopt it. It is coming to this: that the use of the lap bale will save the cost of the breaker lapper, with the automatic feeder and the power required to drive it, which in reality is half the power employed in the picking-room. It will also save one-half

the floor space and about one-third the labor in the picking-room. Work hitherto done in the picking-rooms of our mills is hereafter to be done practically by cheap negro labor in the South. In other words, our cotton is to be delivered to us in an advanced stage of preparation; in the form of a condensed breaker lap.

Among the many advantages of the lap bale are the following:

Freight.—Ultimately a great saving will be made in freight, as a car or vessel will hold more than twice the weight that they will of the old bale.

Storage.—A given space in a storehouse will hold more than twice as much cotton in the lap bale as it will in the old bale.

Insurance.—Owing to the fact that the air is excluded from the bale, it will not burn. If it takes fire it burns the outer layer and goes out, there not being any air within to support combustion.

In case of a bale being scorched on the outside, a single layer may be unrolled and instantly you have a clean bale, that does not even smell of burnt cotton. The cotton can only be released by the continual unrolling of the lap, as it is held together by one lap being pressed against another like a bolt of cloth.

There are no hoops, wires or metal of any kind about the bale, so that there is no danger from fire, as is frequently the case when they are used to hold cotton bales together and in place.

Broken pieces of wire or hoop often find their way into the picker, when fire is almost sure to ensue. This cannot happen with the lap bale. The insurance companies recognize all these advantages, and are willing to insure cotton in this form at very much lower rates.

Handling.—It requires very much less labor to handle these bales at all points. It is like a man building a stone wall; he can lay much more wall and handle many more tons of stone in a day if he has small stones that he can lift, instead of large stones that require machinery or assistance.

Condition.—The cotton comes to the mill in neat, compact bales, well covered and protected and distinctly marked, so that the numbers and weights are legible and easily distinguished.

Invoice Weights.—It is the testimony of treasurers of several New England mills who have used cotton in the cylindrical bale that the weights hold out, and in many cases overrun. A recent instance is noted where an invoice of 570 bales, invoiced at 267,245 pounds, on being weighed at the mill was found to weigh 267,685 pounds, an overweight of 440 pounds. The actual tare on this lot of cotton was 2278 pounds by weight, or about .85 of 1 per cent.

Waste.—The net waste in using the new 36-inch cylindrical lap bale is reduced to a minimum, and reaches a lower point than has ever before been touched in cotton manufacturing. It will be found that the clean condition of the cotton and the less number of operations employed in the picking-room makes a great saving of the fiber in all the processes of manufacture. The fiber is not broken or injured by excessive beating, consequently there is less fly, and more full length fiber finds its way into the yarn than by the old method.

This insures a stronger and evenner yarn.

The cylindrical bale has passed out of the tentative stage and become a commercial and mechanical success. It is a fact accomplished. Hereafter the manufacturer who uses it will have an absolute and indisputable advantage over the one who does not use it, and he who does not use it will find himself outstripped and far behind in the race. It is not the purpose of the American Cotton Co. to

antagonize any other bale. It looks upon any other system that is an improvement over the old bale as an ally, and not as a rival. The field is large, and will not be entirely covered for a long time. There is room enough for each and every system. It only remains for the manufacturer, after he has made a trial of all the systems, to decide which is the most to his advantage. The American Cotton Co. does not fear the result.

Profit in cotton manufacturing today is made up of minute economies, and he who disregards them will sooner or later fall out of the race.

If we here in New England expect to maintain our supremacy against the daily growing competition of the South, we must avail ourselves of every possible advantage, and must exact from the South perfect staple in perfect form and in an advanced stage of preparation. The ultimate result will be that the manufacturers will really get cheaper cotton and the planter will get more for his cotton. The saving to both is coming from the elimination of the middlemen, from the cutting off of the opportunities to pilfer and from reduced freight and insurance charges.

The American Cotton Co. is thoroughly established, with ample capital, and is doing a large business. It owns the basic patents on the cylindrical lap bale, and also all the patents for making the bale.

The company leases the cylindrical presses to the planters or ginners, and receives a royalty of twenty cents per hundredweight of cotton baled.

Cotton-Mill Enlargements.

An interesting phase of the cotton-mill situation in the South is the large increase in the number of spindles that is being made by established mills, while comparatively few entirely new mills are being built. The Dwight Manufacturing Co. of Massachusetts, which about two years ago built a \$600,000 mill in Alabama, is doubling the capacity of this plant and will add 30,000 spindles, giving it a total of 60,000 spindles in Alabama. The Massachusetts Mills Co., of Lowell, which has a 30,000-spindle mill at Rome, Ga., built at a cost of about \$600,000, is also enlarging, and will nearly double the capacity of its Georgia mill, adding 20,000 spindles, making a total at that point of 50,000 spindles.

Among the enlargements mentioned in the Manufacturers' Record during the last two months, in addition to these two, are the Granby Cotton Mills, of Columbia, S. C., which increased its capital from \$200,000 to \$800,000 for the purpose of adding 39,000 spindles and 1000 looms; the Crown Cotton Mills, of Dalton, Ga., now adding 10,000 spindles and 244 looms; the Stonewall Cotton Mill, Stonewall, Miss., an addition of 5000 spindles; the Kincaid Manufacturing Co., Griffin, Ga., doubling its mill, adding 6000 spindles and 200 looms, involving an expenditure of about \$150,000; the Rock Hill Cotton Factory, Rock Hill, S. C., is expending about \$150,000 to \$200,000 on enlargements and additional machinery, including 10,000 spindles; the Durham Cotton Manufacturing Co., Durham, N. C., is adding 5400 spindles and 160 looms; the Porterdale Mills, Covington, Ga., is expending \$150,000 on new buildings and 15,000 spindles; the Sterling Cotton Mills, Franklinton, N. C., is adding 4000 spindles; the Pee Dee Manufacturing Co., Rockingham, N. C., 6000 spindles, 300 looms and dyehouse; the Pelzer Manufacturing Co., 4000 spindles, which gives that mill a total of 111,000 spindles, the largest number operated by any one company in the South; the Hanson-Crawley Co., Barnesville, Ga., is

trebling its knitting mill, giving it a capacity of 500 dozen knit garments daily, while the Juniata Mills, Cedartown, Ga., is being equipped to knit 300 dozen of underwear garments daily.

The aggregate increase represented in the enlargements reported since June 1 is 173,980 spindles and 1900 looms.

STRONG POSITION OF COTTON SPINNERS.

Southern Mills Sold Ahead at Higher Prices Than Now Ruling.

[Special Cor. Manufacturers' Record.]

Charlotte, N. C., September 20.

The important development of the week in the textile circles of this section is the establishment of a new supply-house in Charlotte. The company is formed of Messrs. W. H. C. Rose, Joe Farnan, Frank Ferris and A. J. Crompton. They were all formerly connected with the Charlotte Supply Co. and are all good men. The establishment of this new house is an index to the growing importance of Charlotte as a mill center.

The Southern spinner is sharp enough when it comes to business deals. He has not been caught napping while the big cotton crop has been developing. Two months ago he anticipated the situation as it stands today, and made his contracts ahead on the basis of prices then prevailing, and in consequence he is safe now. All along in August and the first part of September the Southern millers were making contracts ahead. At the time they were making these deals yarns were selling at seventeen and eighteen cents. Now they are thirteen and fourteen cents. Contracts made now must be made upon the basis of the reduced quotations. North and South Carolina have lately had the needed sunshine. The fields are dry and the cotton is popping open like popcorn in a skillet. Texas has had the needed rain, and the spinners have at hand the big crop they have been counting on all along. In consequence, cotton is today within a fraction of the lowest point in its history. January is 5.49; in 1894 it was 5.48. The spinners in the South manifested their foresight in making their contracts ahead last month.

Mr. S. P. Tanner, superintendent of the Henrietta Mills, was here today on his return home from Boston. He says that so far as he can learn every mill in the South has fortified itself by making contracts ahead and are for the time being altogether unaffected by the depression.

Attorney Heriot Clarkson returned today from Flat Rock, N. C. He secured from Judge Simonton an order for the sale of the Chester (S. C.) Cotton Mills. The petition was made by S. W. Cramer, John Vanlandingham and John C. Watson, trustees for the bondholders. The date set for the sale is October 6.

The Holt-Williamson Cotton Mill, in Fayetteville, is about ready to start up. W. L. Holt is the president. This is one of the best-equipped mills in the South.

Edenton is to have a cotton mill, the citizens of the town having raised a popular subscription for the purpose; capital \$100,000.

To Add 5000 Spindles.

The Henderson Cotton Mills, of Henderson, N. C., will add from 3000 to 5000 spindles to its factory. The company will erect, in order to accommodate the new machinery, a building two stories high, and the product will be yarns and cloth. The company's present mill is operating 7000 spindles and 204 looms, thus the addition will give it 10,000 to 12,000 spindles as total equipment.

FROM FIELD TO CONSUMER.

A Well-Rounded Industry, Taking the Seed Cotton and Turning Out the Finished Product, Cotton Yarn, Oil, Fertilizer and Cattle Feed.

[Special Cor. Manufacturers' Record.]

Edgefield, S. C., September 14.

A most notable improvement in cotton milling has just been inaugurated in this place in the completion of the plant of the Edgefield Manufacturing Co., which was constructed by the D. A. Tompkins Co., of Charlotte, N. C. The ginnery, oil mill and fertilizer works of this company have been in operation for several years, but it is in the construction of the new plant that some very material improvements for the more economical production of cotton cloth in the South are incorporated.

The idea is one embracing so many advantages and resulting in a saving in so many ways that the wonder is that it has not had a practical development before this. It was left, however, for Mr. Tompkins to work it out, and his lead will doubtless be followed by other mills in the South. Briefly, the new plant here is a complete, well-rounded one. In the first place, it takes the cotton direct from the farmer, doing away altogether with the necessity and expense of baling the cotton and then of afterwards tearing the bale to pieces. Baling is not only made a useless process, but the farmer is saved both time and money, and the factory gets its cotton in better condition than it would be were it baled.

The cotton coming to this plant as it is picked from the farm is taken in hand and put through a continuous and complete process, both the seed and the lint coming out in the shape of manufactured products in various forms, ready for the market and also ready for consumption by the people. In the ginnery department the lint is separated from the seed. Next, in the cottonseed-oil department the seed hulls and the cottonseed meal are separated and put into marketable forms. The cottonseed hulls, having a little of the cottonseed meal mixed with them, is sold for food for cattle and sheep. The cottonseed meal, mixed with acid phosphate and other ingredients, is sold back to the farmers as a fertilizer. The cottonseed oil is sold and goes to make salad oil, to make lard, to pack sardines, to make soap, to make butter, to make light and for many other purposes.

The cotton goes from the ginnery to the cotton mill, where it is made into yarn and then into cloth. The cotton mill is equipped with Mason machinery. This plant, by reason of its new and desirable features, is attracting much attention in the South just now. That it is a very decided improvement over the existing system of cotton milling and a progressive step for the South is patent to all millmen.

Bonded Warehouses for Cotton.

[Special Cor. Manufacturers' Record.]

Charlotte, N. C., September 19.

The promoters of the bonded warehouse business in Charlotte have been moving slowly, but your correspondent is assured that this season will witness the erection of two fireproof warehouses in this city, the first by the Charlotte Bonded Warehouse Co., and the second by the Merchants & Farmers' Bonded Warehouse Co. The former company was chartered just one year ago. The latter company got its charter and perfected an organization during the past summer.

The Manufacturers' Record a few months ago contained complete details of the plan of operations of the Charlotte Bonded Warehouse Co. The success of the bonded warehouse scheme has been

practically demonstrated by this company, which has been doing business since its organization under the disadvantages of a leased warehouse. The cotton upon which it made advances was stored in a compress building and a high rate of insurance had to be paid pending the erection of the company's storage house. The experiment, under these circumstances, has proved the stability of the bonded warehouse, and the pioneer company has had its grounds leveled, and last week gave out contracts for lumber, brick and other building materials. The plan is to build the warehouse in sections, and the present contract is for three sections, each with a capacity of 1000 bales. Other sections will be added as the business enlarges. Each section is divided by a fire wall which not only projects above the roof, but extends out from the sides of the building three feet into the platform. The warehouse is to be built on plans accepted by the standard insurance companies, and will be as near fireproof as is possible to make it. The present plan is the result of months of consideration, alteration and changes as suggested by the insurance men, and its final adoption secures the greatest desideratum in the bonded warehouse system—low rates of insurance. The task of planning and erecting a building that would conform in every particular to the requirements of the insurance companies, which were many and exacting, has been the main cause of the delay. Mr. Constable, the secretary and treasurer, tells your correspondent that these difficulties have been overcome, and within a few months the Charlotte Bonded Warehouse Co. will be in full operation as originally planned, doing business in its own warehouse.

The Merchants & Farmers' Bonded Warehouse Co. has leased for thirty years a block of ground from the Southern Railroad Co. adjoining its freight depot here, and will build a 10,000-bale warehouse. Mr. Henry McAden is the president, and Mr. A. L. Smith the secretary and treasurer. The other stockholders are Messrs. O. P. Heath, B. D. Heath, Heath-Reed Jobbing Co., John W. Miller and Sanders, Orr & Co.

The warehouse men charge that the brickmakers have formed a combine against them and demand as much for three-quarters soft brick as they would for all hard brick. The Merchants & Farmers' Company is to meet one night this week to consider the brick combine and to make arrangements for beginning the erection of its warehouse at once.

A \$700,000 Cotton-Mill Enlargement.

It has been reported several times during the year that the Dwight Manufacturing Co., of Alabama City, Ala., intended to enlarge its mill to a considerable extent. It is now announced that this contemplated enlargement has been fully decided upon, and arrangements are being made for the commencement of work upon it.

The company's present factory contains 30,000 spindles and 1000 looms, to which will be added 30,000 spindles, doubling the enterprise and giving it a total of 60,000 spindles. In order to accommodate this additional machinery there will be erected a main building three stories high, sixteen feet between stories, 130x500 feet in size; a cotton warehouse, of fireproof construction, 150x400 feet; cloth warehouse, 150x200 feet; boiler-houses and engine-rooms for additional power machinery.

The Dwight Manufacturing Co. is a branch of the corporation of the same name which operates a mill of 130,000 spindles and 3400 looms at Chicopee, Mass.

A New 10,000-Spindle Mill.

The Edenton Cotton Mills, of Edenton, N. C., which was granted a charter of incorporation recently, has been fully organized by the stockholders. Mr. Frank Wood has been elected president; W. O. Elliott, vice-president; H. C. Prescott, secretary-treasurer. The directors (besides the officers) are Messrs. F. A. White, E. R. Conger and W. D. Pruden, of Edenton, N. C., and D. O. McMullen, of Elizabeth City, N. C.

The company will build at once a structure to accommodate 10,000 spindles, but probably only 5000 of the number will be placed in position at the start. The company will use staple grown in the vicinity and produce fine goods. The capital stock produce fine goods. The capital stock of the new enterprise is placed at \$80,000.

Improvements Costing \$20,000.

Mr. T. L. Wainwright, secretary and superintendent of the Stonewall Cotton Mills, of Stonewall, Miss., writes the Manufacturers' Record regarding the additional 5000 spindles recently reported as to be installed in its No. 2 mill. These spindles, together with cards and other machinery (excepting looms), will be added, but not until next summer. At present the company is adding fourteen revolving flat-top cards to mill No. 1 and new dyeing and drying machines, all of which machinery is now being received and placed in position. There is also in course of erection ten new cottages for operatives and some other improvements, all of which will cost about \$20,000. The Stonewall Company's two mills are both running on full time, with plenty of orders ahead.

Semi-Monthly Crop Letter.

The P. B. Tobin Cotton Co., of Augusta, Ga., under date of September 17 writes:

"The first four or five days following the date of our last letter (1st inst.) showery weather, with occasional heavy rains in some localities, prevailed, retarding the opening of and causing some rotting of bolls on sandy lands (5 per cent. of the acreage under review), rust and shedding was complained of and picking interrupted.

"The last ten days have been ideal, both as to temperature and needed sunshine, resulting in great improvement of the crop, as well as a change in the opinion of many who felt that irreparable damage had been done.

"We think that with continuance of present perfect weather, and an average late fall, we will make a good top crop on stiff lands, and the final result show more bales than last year."

To Add 2500 Spindles.

The Georgia Manufacturing Co., John R. White, president, of Whitehall, Ga., has commenced the erection of an additional building, in which will be placed 2500 new spindles. This equipment of machinery has been ordered from the manufacturers, and will arrive and be placed in position within a few weeks. The product will be Nos. 10 to 20 yarns. The company's present mill has 11,656 spindles in position, producing single and double yarns Nos. 20 to 40.

Textile Notes.

The Cornelius Cotton Mill, of Davidson, N. C., has declared a dividend of 6 per cent.

The Mooresville (N. C.) Cotton Mills will erect an extension to its mill to be used for a finishing and clothroom. The new structure will be a 40-foot extension.

The Board of Trade of Cumberland, Md., is in communication with a Phila-

delphia (Pa.) party relative to the establishment of a silk factory to employ 200 hands.

A movement is on foot at Weldon, N. C., for the erection of a cotton mill. The citizens of the town will meet on the 24th inst. and consider the formulation of plans for securing the enterprise.

It is reported that the Bibb Manufacturing Co., of Macon, Ga., will erect an additional cotton mill, and it is said that the citizens of Thomaston, Ga., are endeavoring to have the plant located in that city.

The Lancaster Cotton Mills, of Lancaster, S. C., has declared a semi-annual dividend of 3 per cent. This company manufactures fine sheeting, operating at present 10,500 spindles night and day, and 476 looms during the day only.

The Holt-Williamson Manufacturing Co., of Fayetteville, N. C., has about completed overhauling and improving the Phoenix Mill, which it purchased recently. The equipment is 7000 spindles, of which 2000 have just been added.

A plan for the establishment of a large cotton factory was presented at the meeting of the Cotton Producers' Association, held in Waco, Texas, last week. A \$100,000 corporation is proposed, in which the cotton producers of the State are expected to invest largely.

The directors of the Crown Cotton Mills, of Dalton, Ga., met last week and declared a dividend of 10 per cent. The present board of directors and other officers were re-elected. This company is doubling its 10,000-spindle 256-loom plant, as was noted in last week's issue.

The establishment of a woolen mill at Oxford, N. C., is talked of. Mr. C. J. Cooper is mentioned in connection with the proposed enterprise, and is now asking for information regarding the manufacture of the cheaper grade of woolen goods, estimates on cost of machinery, etc.

There is a movement on foot at Waxahachie, Texas, for the erection of a cotton mill. The citizens have held a meeting to formulate plans for the enterprise, and a stock company is proposed. Messrs. E. C. Huckabee, M. B. Templeton, R. K. Erwin, G. C. Groce, Jack A. Beall, L. C. Todd and others are interested.

The buildings of the Wiscasset Cotton Mills, of Albemarle, N. C., are nearing completion. This enterprise was formed last March, with a capital of several hundred thousand dollars, and now it expects to commence installing machinery within twenty days. Eighty operatives' dwellings have been erected by the company. Just what number of spindles and looms will be installed has not been announced.

Under a decree of the court the Swift Creek Cotton Mills, located near Petersburg, Va., was offered at public sale on September 21. The property was purchased by Messrs. August Wright and Charles Leonard, both of Petersburg, for \$9200. Mr. Wright is reported as stating that he and his associates have not yet decided what will be done with the property. This plant contains 5260 spindles and 150 looms.

It was announced last week that the directors of the Talladega Cotton Factory, of Talladega, Ala., had decided to double their 3328-spindle mill. Contract for the machinery to be needed was awarded during the past week, Messrs. Howard & Bullock, of Pawtucket, R. I., being the successful bidders. The mill building will be extended fifty-six feet and twenty feet wide in order to accommodate the additional apparatus. The improvements proposed will cost probably \$50,000.

RAILROAD NEWS.

[A complete record of all new railroad building in the South will be found in the Construction Department.]

BALTIMORE & OHIO CONTROL.

It May Become Part of a System Encircling the Globe—Its Export Business.

The report that a controlling interest in the Baltimore & Ohio Railroad has been secured by a Western syndicate has been practically confirmed by statements of officials of the company and members of the syndicate. Those representing it are announced to be James J. Hill, president of the Great Northern Railroad Co.; Philip D. Armour, Marshall Field and Norman B. Ream.

It is hardly necessary to refer to Messrs. Hill, Armour and Field. The former within a few years has acquired an international reputation as a railroad promoter and organizer. Mr. Armour, who is at the head of the packing company of this name, is a multi-millionaire, and is one of the largest, if not the largest exporter of breadstuffs and provisions in the United States, while as a grain purchaser and operator his transactions, it has been claimed, involve at the lowest estimate fully \$100,000,000 annually. Mr. Field is the senior member of the firm of Marshall Field & Co., one of the most extensive dry goods houses in the world.

It is supposed that the connection of Messrs. Field and Armour with the Baltimore & Ohio is partly on account of their extensive interests abroad, the Armour Company alone employing thousands of cars to export its products to the various seaports. The advantages of such a railroad, with terminals at Baltimore, Philadelphia and New York, to this company is apparent, while Field & Co., through Mr. Field's connection with the system would undoubtedly derive great benefit. The association of Mr. Hill with the Baltimore & Ohio is translated to mean that the Baltimore & Ohio is to become the Eastern rail connection for the Great Northern. This system represents a combination of lines in the Northwest from St. Paul, Minneapolis and Duluth, at the head of Lake Superior, to Vancouver, British Columbia, Seattle, Wash., and Portland, Ore. It comprises 4500 miles of rail line, and operates trains directly to several of the best seaports on the Pacific coast. For some time a line of steamships has been in service to Japan in connection with the Great Northern, and it is understood that arrangements are being made for close traffic relations with the Siberian Railroad when it is completed to its Asiatic terminus. In addition to this rail line, the Great Northern maintains a fleet of large steamships between Duluth, Detroit and Buffalo. A direct steamship line between Seattle and Honolulu is also maintained in connection with the Great Northern, as well as a coasting service from its Pacific seaports to Alaska and Port Townsend. The main line and branches intersect some of the largest grain fields in the West, and its profit from this source constitutes a large item of its revenue.

While the Baltimore & Ohio terminus is at Chicago and the Great Northern at Minneapolis, there is no question but what the promoters of the combination have secured one of the various railroads built between these cities, and that a through route has been perfected from Seattle and Portland to the Atlantic coast in connection with the service to Japan and the Sandwich Islands already referred to. The magnitude of this scheme can be appreciated when it is stated that it comprises 8450 miles of

railroad, in addition to the trans-Pacific steamship lines, while with the completion of the Siberian Railroad it may be a part of a system of transportation which will literally encircle the globe.

The result of this combination has been generally discussed in railroad and official circles since it was confirmed, and it is the supposition of those best informed that Mr. Hill will be at the head of the rail lines, that Mr. Cowen will retain his present position as president of the Baltimore & Ohio and Mr. Murray will be its chief executive. The Manufacturers' Record has from time to time recorded the improvements which have been made to the Baltimore & Ohio, which have resulted in rebuilding all the main line and most of the branches and equipping them with up-to-date rolling stock, as well as heavier bridges and modern buildings. In fact, the Baltimore & Ohio may be called a new railroad throughout, with as good terminal facilities as any other in the country.

The combination of the Great Northern will mean that its grain and other export business, already very large, will be possibly doubled. It is supposed that Baltimore will be the principal exporting point. If so, the volume of export business in this city will be greatly enlarged and the company will require far more terminal facilities on the harbor than it possesses at present. There is a possibility, however, that some of the export business may be sent to Philadelphia and New York.

The headquarters of the consolidated system will probably be Chicago. If this is the case, the main offices will be removed from Baltimore to that city.

Illinois Central Report.

The annual report of the Illinois Central system, recently made public, verifies the excellent condition of the company, financially and otherwise, which has already been referred to in these columns. The report shows that the gross earnings increased \$5,206,883, or 23½ per cent.; net increased \$2,287,297, or 36 per cent., and the sum available for fixed charges and dividends increased \$2,363,021, or 25 per cent. The net charges to capital for the year were \$1,583,636, but the income account shows there were charges for improvements and other extraordinary expenditures to the surplus earnings of the year. The total gross earnings from traffic were \$27,317,819, and the operating expenses \$17,363,000. The fixed charges and rentals were \$6,510,000, leaving a surplus of \$5,313,000.

During the year the mileage on which operating results were based was increased 678 miles, raising the total to 3808 miles, not including the 807 miles comprised in the Yazoo & Mississippi Valley road. The report enumerates six lines, which make up the 678 miles added, the chief piece being the Louisville division (formerly the Chesapeake, Ohio & Southwestern) and the Ohio Valley. A statement is given showing that the available net earnings on the Louisville division for the twelve months were \$687,517, while the net charges which the Illinois Central had to meet on this division were only \$501,885, leaving a surplus from the operation of the division for the twelve months of \$185,632.

Another important acquisition in recent years has been the St. Louis division, comprising the former St. Louis, Alton & Terre Haute Railroad. The net earnings of this division for the year are reported at \$548,139, with charges of \$502,399, leaving a balance of \$45,740. These lines are all included in the returns of the Illinois Central itself. The Yazoo & Mississippi Valley net earnings, which in 1892-93 were \$759,139, for 1897-98 were

\$1,569,028. The obligatory fixed charges were \$785,202, and the company was able to apply \$381,068 in payment of outstanding notes.

It has been the settled policy of the company to improve from year to year the standard of maintenance, and in pursuance of that policy the maximum weight of rail has now been increased from seventy-five pounds per yard to eighty-five pounds; the standard width of embankment for single track increased from eighteen feet to twenty feet; the maximum capacity of coal cars raised from thirty tons to forty tons, and the maximum weight of locomotives from seventy-four tons to seventy-nine tons. Notwithstanding the large amount of rail used in the preceding year for renewals (30,155 tons), 31,325 tons more were applied in the same way in the late year. During the coming year the company will continue its elaborate plans for physical improvements, which will include additional terminals and yards at New Orleans, the construction of a large mileage of side-track and the relaying of portions of the main line with heavier rails, as well as reducing the grade to a considerable extent.

Nashville, Chattanooga & St. Louis.

At the annual meeting of the Nashville, Chattanooga & St. Louis Railroad Co. the present board of directors were elected, also the following officers: President, J. W. Thomas; secretary and treasurer, J. H. Ambrose; comptroller, J. D. Maney; chief engineer, Hunter McDonald.

The report of President Thomas contains a number of interesting facts. At present the system represents 1189 miles of line. Its gross earnings for the year show \$5,647,000, and its net earnings \$1,983,000. After deducting charges of all kinds the surplus remaining is \$460,500, out of which a 4 per cent. dividend was paid, leaving a balance of \$60,500. The year's earnings show a gain of \$57,600, while the gross earnings are larger than any year since 1892. This does not include the Western & Atlantic report. During the year two locomotives were purchased and ninety-eight overhauled and rebuilt, while 116 passenger and freight cars were purchased and 2700 repaired.

Railroad Notes.

H. E. Farrell has been appointed general freight agent of the St. Louis Southwestern Railroad Co., succeeding George W. Barnhart.

Mr. E. B. Blair has been appointed traveling passenger agent for the Mobile & Ohio Railroad, with headquarters at Jackson, Tenn.

The Houston East & West Texas Railroad Co. has purchased fifty freight cars and five locomotives to add to its rolling stock now in service.

The Illinois Central Railroad Co. announces that the office of J. F. Merry, assistant general passenger agent, has been removed to Dubuque, Iowa.

D. K. Penn has been appointed traveling freight agent and D. R. Fawcett contracting agent for the St. Louis Southwestern Railroad Co., with offices at Dallas, Texas.

In addition to its many other improvements, the Baltimore & Ohio Railroad is about to use the telephone for long-distance communication. Work will begin in a few days on the construction of two new copper telegraph lines between Baltimore and Pittsburg, 340 miles, and they will be so arranged that when the necessity arises they will be available for telephonic communication.

COMMERCE.

This department is devoted to a record of the rapidly developing commerce of Southern ports.

Opportunities in Porto Rico.

In order to obtain a practical view of conditions in Porto Rico Mr. O. P. Austin, chief of the bureau of statistics of the Treasury Department, has made a visit to the island. He has embodied his impressions in a statement which will be eagerly read by persons contemplating investments in the island. After a survey of conditions there Mr. Austin says:

"Much interest is already being evinced by people from the United States in the matter of investments in Porto Rico, and on this subject there is a variety of opinion. Coffee plantations are first considered, as they have a reputation of having paid from 15 to 25 per cent. profit annually upon their cost. They are held at high prices, however, from \$75 to \$200 per acre in Porto Rico money, according to location, quality of coffee produced, age of trees, etc. The western part of the island is considered the best for coffee, and produces the celebrated 'Cafe Caracollilla,' which is all sent to Europe at the export price of thirty-two cents per pound in Porto Rico money. Sugar plantations are considered next in importance, and are relatively higher in price because of the more expensive machinery required, while their attractiveness as investments is reduced by the fact that many plantations have of late been abandoned as such and turned into cattle ranges. Tobacco has been very profitable of late because of the shortage in Cuban tobacco, for which it has been substituted, though whether it will continue its popularity when the Cuban article resumes its normal position in the market is uncertain. Tropical fruits have had little attention, either among local exporters or American investors, but might prove more profitable than the other interests more discussed, as they are ready for shipment at a time of the year when the markets of the United States have not begun receiving the Florida or California fruits. As to the increase which may be expected in the production and consumption of the island, it will depend somewhat upon the improvements made in harbors, roads, transportation facilities, etc., and the energy with which the Americans may push the work of its development. The land in the valleys is extremely rich, and that of the mountain sides even to the very top is of good color and productive, especially for coffee and some of the fruits. With the opening of roads to the interior it is probable that considerable land not now tilled would be brought under cultivation, and the general consensus of opinion among intelligent residents of the island is that the products can be increased 50 per cent., or perhaps more, and the profit greatly increased by modern methods of cultivation and transportation, and the consuming power of the island increased in about the same proportion. Even should this happen, however, the island could furnish but about 10 per cent. of our annual consumption of tropical products, and consume but about 2 per cent. of our annual exports. The business enterprises most likely to be successful in Porto Rico are those related to the tropical productions which flourish there, and cannot flourish in the United States, while to our own temperate climate and well-established industries should be left the task of supplying the general food products and manufactures required by the people there, sending them the products of our grain

fields and factories by the vessels which return laden with their tropical growths."

Jottings at the Ports.

It is announced that the Ulster Steamship Co., having a service between Baltimore and Great Britain, has given a contract for an additional vessel which is to be built at Belfast, Ireland.

The business men of Jacksonville, Fla., have become interested in the opportunities to trade with Cuba and Porto Rico, and the Board of Trade is now considering plans to obtain a steamship service.

Arrangements are being made to establish another line of fruit steamships between Baltimore and Jamaica. It is stated that the service will be inaugurated through Messrs. Patterson, Ramsay & Co.

The Crescent Packet Co. has been organized to operate a line of steamboats in Tidewater Mississippi, with \$50,000 capital. Its offices will be at Mississippi City. Among those interested are Norman Eustis and John A. Clark.

The largest cotton-carrying ship which has ever arrived at Charleston, S. C., is the Imani. This vessel has a capacity for over 13,000 bales, and has been built but a few months. She is 420 feet in length, and has a cargo capacity of over 7000 tons.

The Benedict Commission Co. has been successful in securing a contract which involves about \$65,000 to supply the government with hay for horses and mules. The hay will be shipped from points in Missouri and Illinois to Jacksonville, Fla.

According to a Galveston dispatch, it is stated that arrangements have been made to export 500,000 bushels of corn raised in Texas alone. This is in addition to the other products which are being sent to Europe by way of Galveston.

According to a dispatch from Mobile, Ala., three lines of vessels have been formed for trade between that city and the West Indies. The pioneer ships have been loaded with provisions and live stock. The shipments include 600 head of cattle.

Phosphate and Fertilizer Notes.

The Gulf Transit Co. of Pensacola cleared the steamship Nantes Le Havre for St. Louis de Rhone with 1567 tons of phosphate rock.

The total shipments of fertilizers from Charleston, S. C., from September 1, 1897, to August 31, 1898, amounted to 437,138 tons, of which 423,715 tons were by railroad and 13,423 tons by steamers and sailing vessels. The shipments for 1896-97 amounted to 374,494 tons.

The shipments of phosphate rock from Charleston, S. C., from September 1, 1897, to August 31, 1898, amounted to 323,121 tons, of which 94,691 tons were coastwise, 58,430 tons to the interior and 170,000 tons consumed. From Beaufort, S. C., the shipments amounted to 86,460 tons, of which 49,463 tons were foreign, 6997 tons coastwise, 14,000 tons to the interior and 16,000 tons consumed, making a total from both ports of 409,581 tons.

During the past week the following coastwise shipments of phosphate rock were reported at the port of Charleston, S. C.: Schooners Edward G. Hight with 675 tons, and Anna L. Mulford with 800 tons, both for Baltimore; schooner Mary Curtis for Richmond, Va., with 560 tons, and schooner Emma C. Knowles, 960 tons, for Elizabethport, N. J. The total shipments from the 1st to the 16th inst. were 2714 tons. The schooner T. W. Dunn cleared on Saturday with 960 tons of rock for Boston.

PHOSPHATES.

Phosphate Markets.

Office Manufacturers' Record, Baltimore, Md., September 22.

There has been some business in phosphate rock this week, and manufacturers are buying special lots. The market, however, is quiet, in sympathy with other fertilizer ingredients. Prices continue nominally steady. At points of production the situation continues fairly satisfactory, and shipments are above the average. The fiscal year ending August 31 shows a good record in shipments from both Florida and South Carolina, considering the disturbing factor of the war with Spain, which restricted shipments very materially. The market today in South Carolina is very steady, with prices unchanged; for crude rock \$3 at mines, hot-air-dried \$3.25 f. o. b. Ashley river and \$3.45 f. o. b. city. During the fiscal year just ended the shipments of rock foreign, coastwise, interior and consumed from Charleston amounted to 323,121 tons, and from Beaufort 86,460 tons, making a total of 409,581 tons. In Florida there is considerable activity, both among land and river miners, and a number of plants that have been idle some time have been taken hold of by capitalists and are now mining rock to much better advantage on account of improved facilities recently added. The output from Florida during the year has been moderate, and shipments show up remarkably well under existing conditions. From all the ports shipping Florida rock the amount reported in 1897-98 was 506,335 tons foreign and 109,953 tons domestic, making a total of 616,288 tons, against 502,415 tons foreign and 188,233 tons domestic, or a total of 690,648 tons, in 1896-97. Tennessee phosphate rock is still firm as to value, and the output continues very heavy. Shipments during the fiscal year will, it is said, be 200,000 tons, the foreign shipments through Pensacola being unusually large. During the past week the following charters were reported in New York: A schooner from Pensacola to Cartaret, N. J., with phosphate at \$1.90; British steamship Lord Shaftsbury, 2273 tons, from Port Royal to Yokohama with phosphate rock at 31/3, and British steamship James Turpie from Port Royal to Bristol with phosphate rock at 16/6.

Fertilizer Ingredients.

The general market for ammoniates is rather quiet, and, with the exception of a fair movement in the West and a moderate export trade in dried blood, there is very little doing at the moment. Eastern buyers are not in the market, and the demand from Southern sources is light. There is a light inquiry for tankage, and fish scrap is dull. There is a liberal offering of sulphate of ammonia, and values are easier. Receipts of nitrate at New York are more liberal, which were mostly sold to arrive, while values are steady.

The following table represents the prices current at this date:

Sulphate of ammonia (gas)	\$2 00 @	—
Nitrate of soda	1 70 @	1 80
Blood	1 85 @	—
Hoof meal	1 70 @	—
Azotine (beef)	1 85 @	—
Azotine (pork)	1 85 @	—
Tankage (concentrated)	1 65 @	—
Tankage (9 and 20)	1 75 @	and 10
Tankage (7 and 30)	17 00 @	17 50
Fish (dry)	20 00 @	—
Fish (acid)	12 00 @	—

The shipments of fertilizers from the port of Charleston, S. C., for the month of August were greatly in excess of the corresponding month in 1897. The Southern mills are having all the work they can handle for the outside trade in Tennessee, Kentucky, etc. The indications are that the present year's business will exceed that of last year.

LUMBER.

[A complete record of new mills and building operations in the South will be found in the Construction Department.]

LUMBER MARKET REVIEWS.

Baltimore.

Office Manufacturers' Record, Baltimore, Md., September 22.

The movement in certain lines of the local lumber trade this week has been of more liberal volume, and the demand shows signs of an early improvement. The receipts of yellow pine this week have been more liberal, consisting mostly of rough flooring lumber, a large portion of which was sold to arrive. Air-dried yellow pine continues about steady as to value, and the demand about the same as last reported. Boxmakers are still buying, but the demand from yardmen and other sources continues light. Kiln-dried North Carolina pine is firm, with stocks at milling points somewhat reduced and the demand showing considerable improvement for certain grades. There has been a better business in white pine, which is moving more freely, with prices very steady and stocks ample for all requirements. The market for hardwoods is quiet, but the indications point to a better trade during October, there being numerous inquiries from out-of-town buyers, which may result in considerable actual business later on. Furniture men and other woodworking concerns from out of town have been bidding for certain lots at present prices, delivered in thirty and sixty days, which bids, however, have not been accepted. The export trade is quiet, and shippers are doing but a moderate business. Indications are that the foreign export trade will improve during the autumn season.

Charleston.

[From our own Correspondent.]

Charleston, S. C., September 19.

The week under review has shown a greater degree of activity throughout the general lumber market, and indications point to a revival in the industry. The demand from Northern sources is improving, and for the better grades of lumber prices are steady, with stocks ample for the demand. Prices on Saturday ranged as follows: Merchantable lumber, \$14 to \$16 for city-sawed, \$12 to \$14 for railroad; square and sound, \$9 to \$13 for railroad, \$8 to \$11 for raft; dock timber, \$4.50 to \$6.50; shipping, \$8.50 to \$10.50. Shingles are firm, with a fair supply, at \$4 to \$7 per thousand. At Georgetown there is considerable activity in lumber circles. Work is progressing on the saw-mill plant of the Winyah Lumber Co. The new plant will have a capacity of about 60,000 feet of lumber daily, cutting pine lumber exclusively. Mr. Jacob Savage has begun to build his large saw-mill plant, and when completed will have one of the best-equipped mills in the South. The Gardner & Lacey Lumber Co. was loading last week with lumber the schooners Warren B. Potter for Boston and Puritan for New York. The schooner Robert M. Lintock was loading lumber for Baltimore at the mills of the George Officer Co., on Pee Dee river. The shipments from this port during the week were as follows: Schooner Eliza A. Scribner for Baltimore with 250,000 feet of lumber, and steamer Oneida for Boston with 22,197 feet of lumber and other cargo. The shipments of lumber from this port for the year ending August 31 amounted to 54,296,940 feet, of which 32,420,769 feet went to New York, 11,465,081 to Boston, 1,570,000 to Philadelphia, 1,947,000 to Baltimore, 6,145,000

to other United States ports, 722,000 to the West Indies and 27,090 feet to other foreign ports.

Savannah.

[From our own Correspondent.]

Savannah, Ga., September 19.

A fairly active demand has ruled in this section for lumber and other wood products, and the indications are favorable for a good business from this time on during fall and winter months. The reports from adjacent ports in this State are very encouraging, and from all interior points business in every avenue of the lumber industry is improving. The list of values in some sections of the State show quite an advance, while at this port prices are firm, but not quotably higher. Minimum yard sizes, \$9.50; car sills, \$10; difficult sizes, \$11 to \$12; ship stock, \$15 to \$16.50; sawn crossties, \$8.25; hewn crossties, 30 to 31 cents per tie; market quiet and firm at the close on Saturday. At Brunswick it is said that shipments of lumber for the present month will be very large; the same applies to Darien. All mills on the railroads terminating here have plenty of orders, and are generally running on full time. During the past week the following clearances were reported: Schooner Emily F. Northam for Philadelphia with 276,406 feet of pitch-pine lumber; schooner Robert McFarland for Portland, Me., with 487,000 feet, and schooner Maggie M. Keogh for New York with 450,000 feet. Baltimore steamers cleared with over 270,000 feet of pitch-pine lumber, New York steamers with 330,000 feet and Boston steamers with 75,548 feet. Lumber freights continue about steady, with rates at \$4 to \$4.75 for a range including Baltimore and Portland, Me. Railroad ties, basis forty-four feet, to Baltimore 13½ cents, to Philadelphia 14½ cents and to New York 16½ cents. Among the charters reported were the following: Schooner E. H. Blake from Brunswick to Perth Amboy with dressed lumber on private terms, and a schooner from Brunswick to New York with lumber at \$4.62½.

Mobile.

[From our own Correspondent.]

Mobile, Ala., September 19.

A fairly active market has been the rule at this port in lumber and timber circles during the past week, and every feature of the market looks more promising. The movement in timber continues of moderate volume, and shippers are encouraged by late advices from Great Britain and the Continent in regard to the outlook for future trade from these sources. The London Timber Trade Journal of the 10th inst., in its review of the market, says: "The chief feature of the day is the enormous consumption of wood goods now going on from the docks in London, which, up to the end of last month, exceeded that of the corresponding period of last year by some 27,000 standards of sawn wood and 10,000 loads of floated timber. This may be accepted as a strong guarantee of the sound condition of the wood trade, accompanied as it is by an especially good grain harvest, which has been garnered quickly and cheaply in consequence of the splendid weather. In most of the corn-growing districts the crops are stated to be the largest known for the past sixty years, and the beneficial effects of this agricultural prosperity will extend itself to all other branches of commerce. Most of the wood business doing is limited to goods on the spot, prices of which continue steady, and all the fresh arrivals coming to hand are passing into consumption. There was a considerable sale of sawn pitch-pine timber on Wednesday at Cannon street, which averaged for the

best shipments 52s. 6d., and for the inferior 47s. 6d. per load, thirty-five feet cube basis. The mahogany and hardwood market shows no change. Values are steady at former sale rates, there being only a moderate private trade passing. In the absence of public sales we are unable to furnish market quotations, but there is not much activity in the wholesale trade, many of the leading members being still out of town, but a reaction is shortly expected to set in with the usual autumn demand." Sawn timber here is steady at 10½ cents per cubic foot, 40-foot basis, and contracts are made at 10½ to 10¾ cents. Cypress logs are in good demand at 6 to 9 cents per cubic foot, according to the average. There is a good inquiry for saw logs at \$5 to \$7 per 1000 feet. A fair demand rules for hewn timber at 12 cents per cubic foot, basis of 100 cubic feet, average B1 good. The lumber trade is quite active, and mills are generally employed, with good orders on file. A number of inquiries are to hand from Cuba for certain grades, and it is expected that a good trade will shortly be developed with that island. Prices of all desirable grades of lumber are firmer under a fair demand, while stocks are not excessive. Shipments during the week from Moss Point, Pascagoula and other Mississippi ports have been larger than usual. The shipments from this port last week were as follows: Steamer Dunnotter for Barrow-on-Furness, England, with 200,400 cubic feet of sawn timber and 40,200 feet of lumber; ship Pandion for Amsterdam with 21,550 cubic feet of sawn timber, 24,207 cubic feet of hewn timber and 24,041 feet of lumber; steamer Cainerag for the Tyne with 165,585 cubic feet of sawn timber, 1750 cubic feet of hewn timber and 67,079 feet of lumber. Lumber and timber freights continue steady, with a fair offering of desirable tonnage. The steamer Twickenham was chartered last week to load sawn timber here for the United Kingdom or Continent at or about 120¢ prompt.

St. Louis.

[From our own Correspondent.]

St. Louis, Mo., September 19.

There is very little change in the general lumber situation, and the movement of stock is holding its own. There is a good local as well as out-of-town demand. Factories are generally all running on full time, and shipments of lumber are generally larger than usual at this period of the season. The demand for yellow pine is not so decided, as building is still quiet, but during October a good trade is expected. Yardmen are also purchasing rather light on this account, but there is bound to be a big trade later on. Yellow pine is generally firm as to value, and stocks at milling points are not excessive. There is a good demand for hardwoods from furniture, wagon and box factories, and yardmen are buying quite liberally. Stocks of quartered white oak, thick white oak and ash are being considerably reduced, while receipts continue light. Car shops and agricultural implement manufacturers are all busy, and are in the market purchasing some large lots. There is a fair demand for both red and white oak. Receipts of other woods are light, and prices generally firm, with a good demand.

Lumber Notes.

The Camp Manufacturing Co., of Franklin, Va., purchased last week from Mr. Q. W. Galusha, of Dinwiddie, Va., a valuable tract of timber land. The price paid for the property was \$10,000 cash.

The Thos. Berger & Sons Co., of Cumberland, Md., are now operating the planing mill and lumber-yards recently pur-

chased from Mr. George D. Landwehr, of that city. This firm of Berger & Sons own and operate lumber mills at Pendleton and Douglass, W. Va.

Messrs. P. H. and A. E. McWhorter, of Buckhead, Ga., will shortly start an axe and hoe-handle factory in that town. They have purchased 150 acres of timber land on the Oconee river. The timber is composed chiefly of oak, ash and hickory, said to be the finest in the State.

The plant of the Hillsboro Cypress Co. at Hillsboro, Fla., recently purchased by Mr. J. G. Christopher, of Jacksonville, is valued at \$60,000. Besides the milling plant, there is a large body of cypress timber lands. It is understood that the plant will be put in readiness for operations at once.

There are now seven large saw mills in operation on the line of the first twenty miles of the Richmond, Petersburg & Carolina Railroad in Dinwiddie county. Their capacity at full work is about 100,000 feet of lumber a day, and shipments will commence as soon as the road is ready for freight.

Mr. Jacob Savage, of Georgetown, S. C., has commenced to build his large saw mill. When completed Mr. Savage will have one of the largest and best-equipped plants in the South, and will saw sap pine lumber exclusively. This, in connection with his planing mills, will double his volume of business.

The work on the new saw mill of the Wilson Cypress Co. at Palatka, Fla., is being pushed forward as rapidly as possible. The main building is enclosed, and a large number of workmen are engaged in placing the machinery in position. When completed it will be the largest cypress mill in the State.

Mr. J. N. Smith, of Monroe county, Ky., has just purchased of the Bailey estate 2500 timber trees for \$2000. There are 500 poplars and walnuts among the number, and it is estimated that the trees purchased contain over 1,000,000 feet of merchantable lumber. The contract is already let for sawing and preparing for shipment.

The Industrial Lumber Co., of Beaumont, Texas, which recently leased the saw-mill plant of the Cow Creek Tram Co., of Call, Texas, and purchased about 10,000,000 feet of its lumber on hand at mills, took charge of its new enterprise on the 12th inst. Mr. Charles Hagerty, of the tram company, will have charge of the business at the Ho Ho Mills.

Work is progressing nicely at the big saw-mill plant of the Winyah Lumber Co., purchaser of the Old Palmetto Mills' property at Georgetown, S. C. The new plant will have a capacity of 50,000 to 60,000 feet of lumber per day, and will cut pine lumber exclusively. The company will ship to the leading markets of the country, as well as to West Indian ports.

Messrs. Eastman, Gardner & Co., of Laurel, Miss., shipped on the 14th inst. a solid trainload consisting of twenty-five cars of lumber to Northern and Western points. The demand for lumber is so great that all the mills at Laurel are running night and day. The saw mills of South and East Mississippi are having a fine business. It is all they can do to meet the orders for lumber that are being received.

The schooner W. T. Parker cleared from Jacksonville, Fla., last week for Hartford, Conn., with 102,938 feet of yellow-pine lumber and 22,000 shingles. The Clyde Line steamers Algonquin, Cherokee and Seminole cleared with their usual complement of lumber and other wood products for New York. A number of vessels were in port on the

19th inst. loading for Northern and Eastern points.

It is stated that a large company is about to be organized at Valdosta, Ga., by Messrs. John R. Younger and J. A. Cranford to develop 150,000 acres of the finest timber lands in Western Florida. The company will be capitalized at \$300,000, and it is said will operate big supply houses in Mobile. The lands were purchased some time ago by Messrs. B. P. Jones and J. R. Saunders, of Valdosta, Ga., from the Dutch syndicate.

Among the clearances from Pensacola last week the following vessels were reported: Steamship Graphic for Bordeaux with 1,298,000 feet of lumber, 124,000 feet of sawn timber and 10,280 cubic feet of hewn timber; bark Sumerlide for Buenos Ayres with 630,000 feet of lumber; bark Jomfruland for Rio de Janeiro with 768,000 feet of lumber; ship Charles Dickens for Hamburg with 67,248 feet of lumber and 806,976 feet of sawn timber; steamship Aquelija for Venice, with 1,308,000 feet of sawn timber and 351,000 feet of lumber, and bark Theodore J. Engels for Buenos Ayres with 330,000 feet of lumber.

The first regular meeting of the Buyers and Inspectors' Association of the Memphis District was held last week in that city. The meeting was confined to the discussion of lumber matters, but no action was taken. The opinion of those present in reference to the lumber market was favorable. The industry is running smoothly and mills are all busy. The membership of this association is composed of nineteen buyers, who represent lumber firms all over the country, and twenty-eight regular inspectors, who are employed by Memphis firms. The officers are W. S. Morgan, president; F. B. Robertson, first vice-president; T. H. Payne, second vice-president; Benton Broughton, secretary and treasurer.

The committee appointed at the last meeting of the North Carolina Pine Lumber Association at Virginia Beach have prepared a memorial to the American members of the United States and British High Commission, which met in Quebec on the 20th. The committee, after reciting a number of facts from census reports of the United States and Canadian government in proof of their claim that any recommendation to reduce the tariff on lumber without making other manufactured articles stand their share of the necessary concession would be a great hardship, appeal to the commissioners for a consideration of the question to their interest. The memorial closes with the following resolution: Resolved, That we ask no special privilege, legislation or protection not granted to other manufacturing interests; and that no recommendation be made by your honorable body looking to a reduction on the present rate of duty on lumber, which is now less than 18 per cent. ad valorem; but, if necessary, reduce the many highly-protected articles, such as cotton and woolen goods, iron, steel, machinery, etc., which bear duties ranging from 40 per cent. to 60 per cent.; that we are in full accord with the government in its endeavor to establish closer commercial relations with our Northern neighbors, and while responding most heartily to a happy growing sentiment of closer alliance and good-will because of the sympathetic attitude of our mother country (our best customer) and her colonies during the war so happily just ended, we most respectfully and emphatically protest against bearing more than our just share of the sacrifice necessary to bring about the desired end. John L. Roper, R. S. Cohn, Norfolk, Va.; Theophilus Tunis, Washington, D. C., committee.

MECHANICAL.

Marine Steam Engines.

The accompanying engraving of small high-speed Marine engine is taken from photograph of one recently built by the Marine Iron Works, Chicago, and is in-

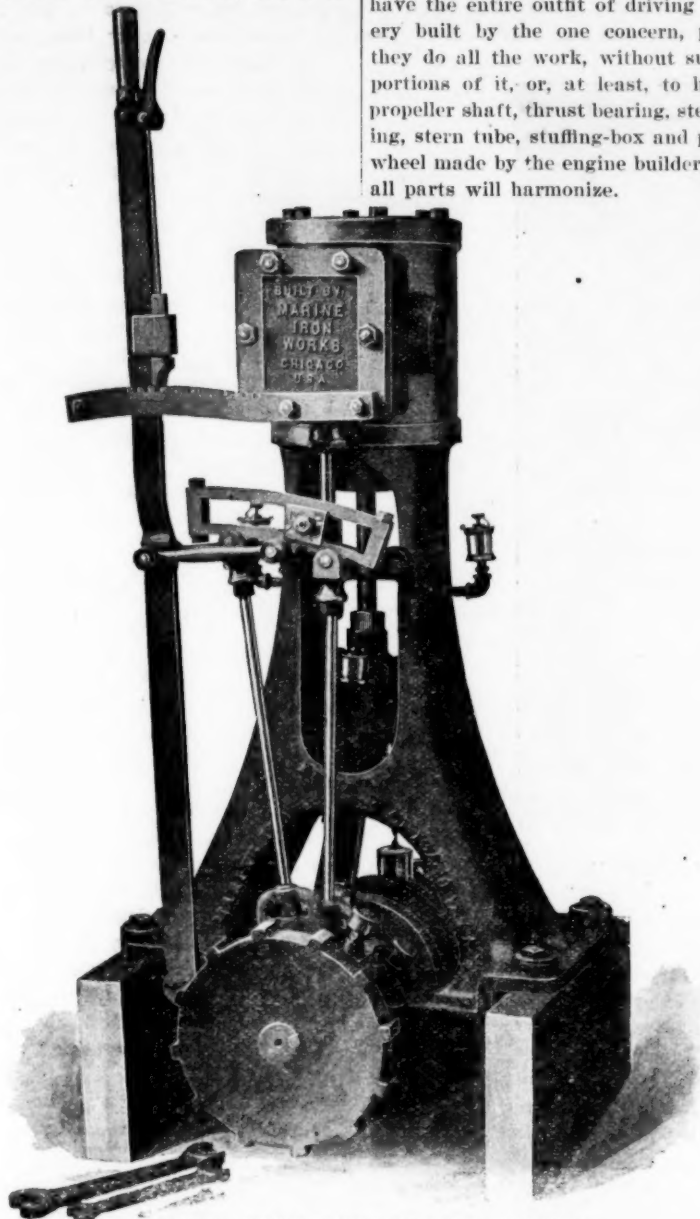


FIG. 1.—HIGH-SPEED MARINE ENGINE.

The crossheads have adjustable bronze slippers; all wear on reversing link and link-block is adjustable. The quadrant is double, and the reverse lever, fitted with central connection on each side of the link, prevents lateral strain and adds years of good service to the engine.

It is to the advantage of the buyer to have the entire outfit of driving machinery built by the one concern, provided they do all the work, without subletting portions of it, or, at least, to have the propeller shaft, thrust bearing, stern bearing, stern tube, stuffing-box and propeller wheel made by the engine builder, so that all parts will harmonize.

tain pattern, no matter how good it may have proven in a few instances, is accountable in a very great degree for the rank failures of propeller wheels that are sometimes met with, and, although the company has many entirely separate and distinct patterns for each of their standard diameters of propeller wheels, they

lishment. The frame is made of hardwood, tenoned and bolted together and finished with several coats of shellac varnish.

The saw mandrel is of steel, carries two saws and revolves in two connected self-oiling boxes. The Cordesman patent automatic expansion device is fitted to

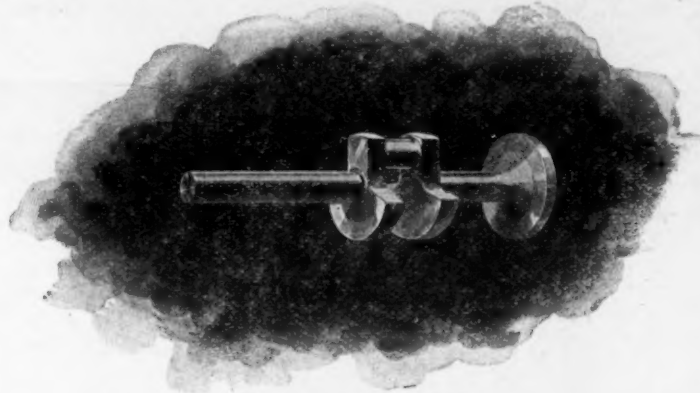


FIG. 2.—CRANKSHAFT.

are constantly adding new patterns in the same sizes, in order to properly fit some unusual combination of machinery, hull, draft of water, revolutions per minute, service required, etc. It is an easy trick to take what has proved beyond a chance for an argument to be the very best possible wheel on some certain boat

both ends of the mandrel, and will take up the difference in the various diameters of saw holes.

The tables are made of glued-up strips of hardwood, with batens fastened below, thus making them strong and substantial and in no way liable to warp or split. The rip-saw table is five feet long and twenty-

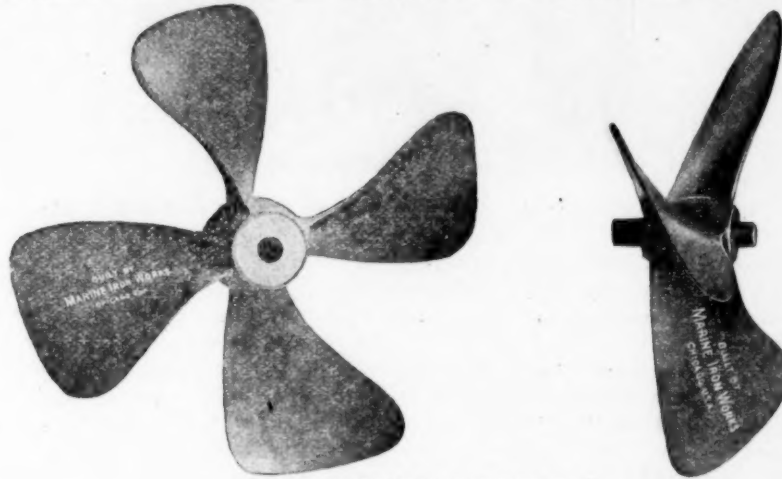


FIG. 3.—PROPELLER WHEELS.

and transfer it over to a "somewhat similar vessel," where it would prove entirely unsatisfactory, the changed conditions accounting for the remarkable difference; hence, the number of patterns it is necessary to carry for each diameter and style of wheel and the care that they must exercise in making the selection.

If correspondents will be particular to

eight inches wide. It is hinged to the back part of the frame and provided with a hand wheel and screw for adjusting it for the different thicknesses of lumber. The cut-off saw table is four feet long and twenty-four inches wide. It is mounted on rollers and a "V" slide, and is provided with a fence that has an adjustable stop gauge to regulate the

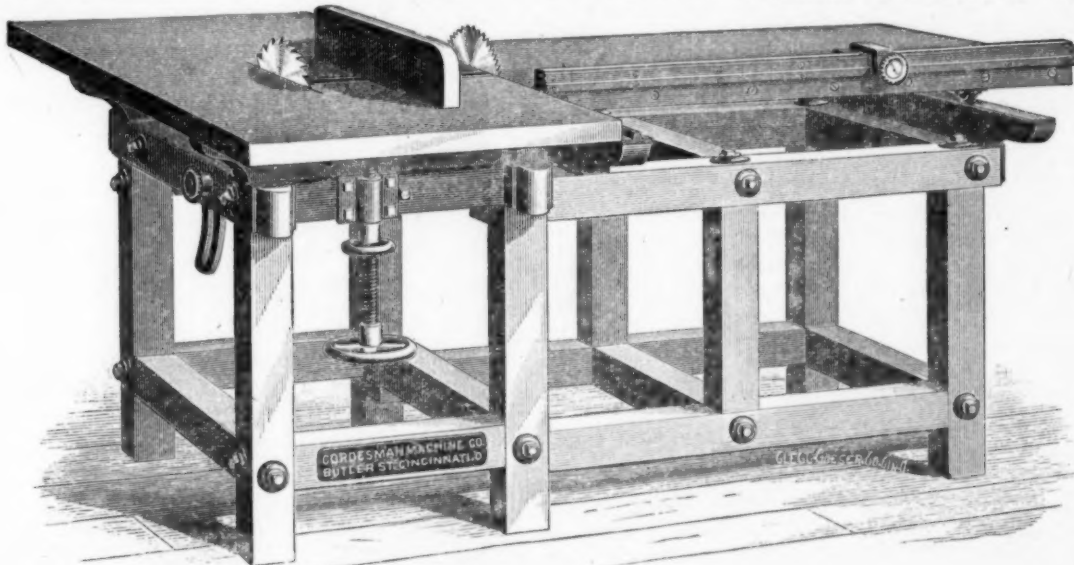
tended to indicate to the critical observer wherein the recognized superiority of design exists and why the frequently severe conditions that any Marine engine is sure to undergo are met successfully and easily. Note position of crankshaft, form of bed-plate, liberal length of connections permitted without carrying the cylinder an inch too high, easy access to all parts, certainty of firm foundation and accurate lining up. All this serves to make a certainty of smooth, steady action under high steam pressure and resultant piston travel.

The crankshafts, being steel forgings, are slotted out from the solid, and, including the counterbalance and coupling flange, are one continuous piece—no building up or bolting on of any part. Connecting rods are also steel forgings and in proportion to the crankshaft dimensions. Following are the principal details of seven sizes as built by the Marine Iron Works:

Diameter of Cylinder, Inches.	Length of Stroke, Inches.	Height above Foundation Timbers, Inches.	Diameter of Crankshaft, Inches.	Diameter of Crankpin, Inches.	Steam Inlet, Inches.	Approximate Weight, Pounds.
5	15	34	1 1/2	1 1/2	1	375
6	15	40	2 1/4	2 1/4	1 1/2	660
8	15	48	3 1/4	3 1/4	2	715
10	15	56	4 1/4	4 1/4	2 1/2	800
10	15	63	5 1/4	5 1/4	3	1,400
10	15	63	6 1/4	6 1/4	3 1/2	1,775
10	15	64	7 1/4	7 1/4	4	1,900

Crankshafts in line with top of foundation timbers.

The company is often in receipt of letters congratulating them on the success of their propeller wheels, and not infrequently from those whose judgment on the subject is unquestioned. As a matter of fact, however, the success is, they



COMBINATION RIP AND CUT-OFF SAW.

think, largely attributable to their care in fitting the conditions in each case, rather than anything unique or very unusual about their patterns, none of which are patented or present startling conformations.

The too general use of some one cer-

state the duty required—whether for ordinary cruising, towing or speed purposes—the company will guarantee a wheel to suit.

Combination Rip and Cut-Off Saw.

The combination rip and cut-off saw is well suited for any woodworking estab-

length of stock to be sawed. With each machine is furnished a countershaft and one each fourteen inches rip and cross-cut saws.

For further information address the constructor, the Cordesman Machine Co., Butler street, Cincinnati, Ohio.

American Stokers at Union Station, Brooklyn, N. Y.

Among mechanical stokers and patent furnaces the American stoker, introduced by the American Stoker Co., Washington Life Building, New York city, stands as a practical exponent of the principle of underfeeding of coal.

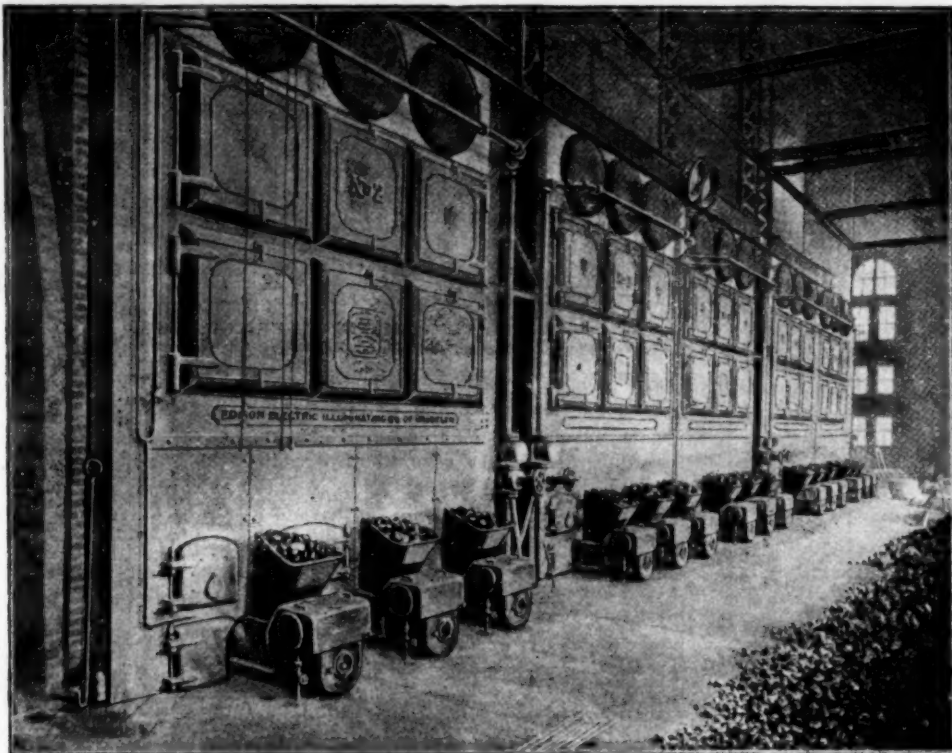
That it is built upon attractive lines is

Immediately beneath the coal hopper of the stoker is a conveyor pipe, which communicates with the coal magazine placed in the furnace of the boiler. A screw conveyor, or worm, is located in the conveyor pipe and extends the entire length of the magazine.

Immediately beneath the conveyor pipe is located the wind box, having an opening beneath the hopper, and through

The coal fed into the hopper is carried by the conveyor into the magazine, which overflows on both sides and spreads upon the sides of the grates. The coal is fed slowly and continuously, and approaching the fire in its upward course is slowly roasted and coked. The gases released from it are taken up by the fresh air entering through the tuyeres, which consumes these gases and delivers the coal

justable in both directions, and it is connected to the tail wheel by a steel bar and a strong clamping device. Head spindle is made of hammered crucible steel one and five-eighths inches diameter, and the bearings are extra long and finished by grinding and buffing; the boxes are self-oiling and are lined with genuine babbitt and carefully scraped to the journals. Tailstock has a very large hand-wheel and a quick screw by which the headstock and driving center are forced forward quickly, driving the spurs into the work with one pull of the wheel. Tail center revolves in tapering bronze bearings, with means of taking up the wear, and it is divided so that the outer section which supports the work can be changed quickly to different diameters. The tail bearing and center are adjustable vertically, and the headstock and center are adjusted horizontally, and they may thus be always kept in line. Carriage has a bearing on a V way or track twenty inches long, and is provided with gibs to take up wear both in front and at the rear. There are usually two turning chisels provided, one to rough out the stuff to fit the die or steady collar, and one forming or V chisel to shape the piece to the pattern. When required, a third chisel stock is added for turning tapers and swells without the use of a back knife. Turning chisels have patent adjustable screw tool stocks, by which they may be adjusted in the cut while the lathe is in motion. Dies or steady collars are of steel and are self-centering and clamped by two steel studs with nuts; the dies can thus be changed instantly by slackening the nuts, and they come to the center accurately. Back knife slide is directly attached to the carriage by an adjustable hanger from the upper bar. By this means there is no springing of the parts between the carriage and the back knife, making much smoother work and saving time. Centering arms swing from a shaft at the rear of the bed, upon which the stock is laid while the previous piece is being turned, and which bring it accurately to the center. They may be ad-



AMERICAN STOKERS AT UNION STATION, EDISON CO., BROOKLYN, N. Y.

evident from its wide and rapidly-extending adoption in power plants of prominence and magnitude in all parts of the country.

The principle upon which the American stoker operates, practically reducing the coal to gas and coke, is to insure complete combustion and guarantee entire freedom from smoke and soot.

It will burn any grade of coal, from the finest slack coal to lump of any size that can be fed into the hopper, the constant feeding doing all the stoking necessary.

A good example of the efficiency of the American stoker is found in its use at the plant of the Edison Electric Illuminating Co., Brooklyn, N. Y., which is claimed to be destined to be one of the largest electrical power plants in the world.

Plans have been made for a 60,000-horse-power station, and about one-fourth of the plant has already been completed. The boiler-room, 198x46 feet, is equipped with boilers of the Cahall water-tube type, each with a nominal capacity of 500 horse-power.

The boilers are furnished with the American underfeed stokers, three stokers independently driven being installed for each furnace. Slack coal for the furnaces is received upon bents at the foot of a dock and carried by cars to storage bins. From these bins it is elevated to smaller bins just above the boiler floor, and from these distributed through chutes to the several conveyors carrying it to the stokers.

Chutes leading from the boiler-house bins terminate in a weighing apparatus which automatically registers the amount of coal passing through.

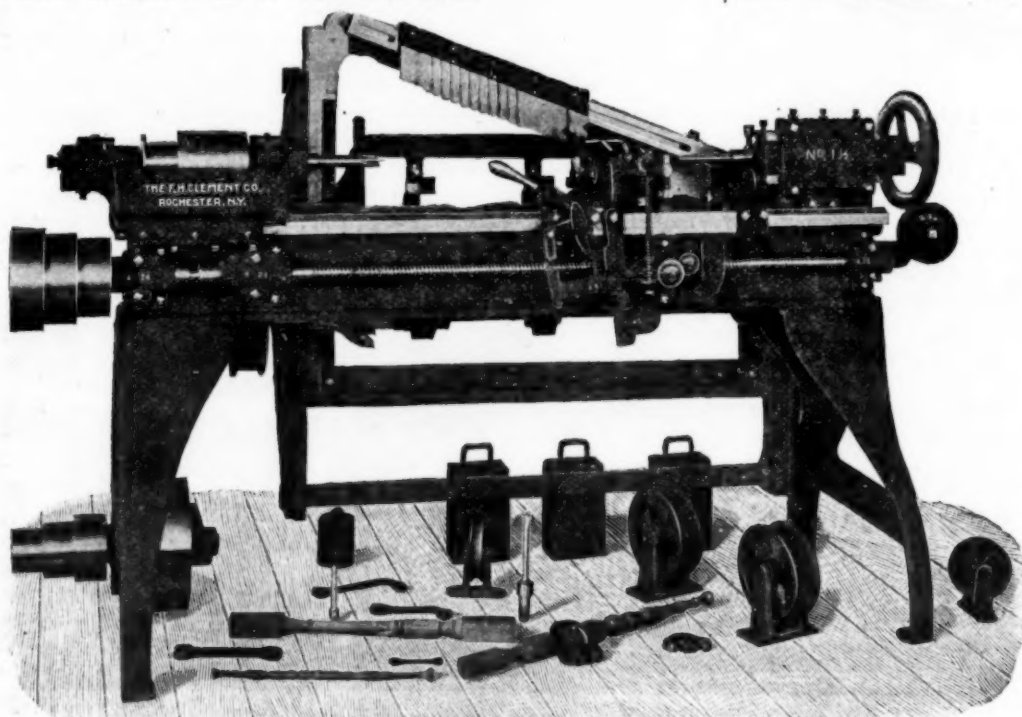
The illustration herewith, showing the boilers and stoker arrangement, was secured before this coal-conveying apparatus was installed. Passing through the weighing apparatus, the coal is distributed by two conveyors to three mechanical stokers on each side. These conveyors are driven by an electric motor located on the upper front edge of the boiler front.

which the air supply for the furnace is forced. The other end of this wind box opens into the air space between the magazine and the other casing. The upper edge of the magazine is surrounded by tuyeres, or air blocks, which are provided with openings for the discharge of air inwardly and outwardly.

Each stoker is driven independently by a small steam motor attached to and lo-

as coke on the grates above.

Every pound of coal fed into the hoppers is subjected to this gas-making process, and there is no loss of coal through grates by reason of the use of dead grates in the furnaces in place of open grate-bars. The complete combustion produced by this method is appreciated when viewing the stack of the plant, from which there is no smoke.



NO. 1 1/2 PATENT AUTOMATIC LATHE.

No. 1 1/2 Patent Automatic Lathe.

This new design is intended to embody all the latest practical suggestions of both users and manufacturers, and it is adapted to all kinds of chair turning and for furniture work up to two and three-quarter inches in diameter.

The bed is deep and strong and well tied transversely. Headstock slides on the ways with suitable gibs, which are ad-

justed to any diameter and length of stick, and are considered indispensable in doing quick and good work. Feed-nut device is arranged to be thrown in or out by the same lever, and is very easy and sure in operation, the half nuts closing squarely into the feed screw. The nuts are lined with genuine babbitt, and will run for years with ordinary care without re-babbiting. Cutting-off chisel is supplied at the head end of the lathe when

so ordered. Capacity—Four lengths of this pattern are made, receiving stock twenty-seven inches, thirty-six inches, forty-four inches and fifty-two inches long between the centers, and they all turn from three-sixteenths to two and three-quarters inches diameter, and will leave squares 2x2 inches at any point. From 600 to 3000 pieces per day can be turned, dependent on the length, diameter and condition of the stock.

These lathes are first-class gauge lathes without the use of the back knife slide, and when ordered can be furnished that way, but fitted and drilled to receive the attachment at any time. When so ordered the oscillating centering arms are included.

For price of this machine address the Frank H. Clement Co. Branch, American Woodworking Machine Co., 330 Lyell avenue, Rochester, N. Y., or any of the salesrooms. Salesrooms—94 Pearl street, Boston; 109 Liberty street, New York; 43 and 45 South Canal street, Chicago, and Church and Basin streets, Williamsport, Pa.

The Cross Oil Filter.

Every user of machinery knows the loss sustained through "waste" oil, which could be used again if the impurities were removed.

Fig. 2 shows a sectional view of the Cross oil filter, made by the Burt Manufacturing Co., of Akron, O. The bottom chamber E is filled with water, heated by a steam pipe passing through the filter. Very little steam is required, and if the filter is kept in a warm place, it will not be necessary to make steam connection at all.

The waste oil is poured in through a top grating into a chamber, B; then through a layer of waste, which collects all the heavier impurities; from thence through the perforated bottom of cham-

washes it out and from which it separates by gravity all the remaining impurities, which settle in chamber E, and can be removed through cock 3. From plate 2D the oil again filters through the stratum of filtering material F into chamber G,

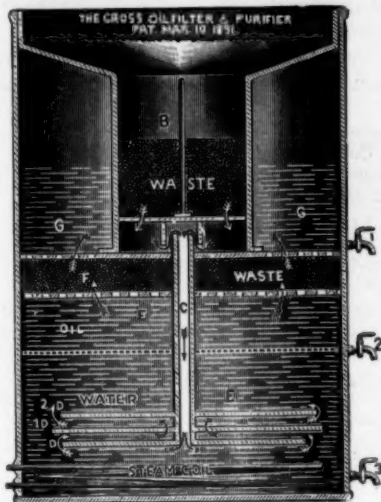


FIG. 2.—SECTIONAL VIEW.

the reservoir containing the purified oil, whence it is drawn off as required by cock 1.

The filter is constructed from extra-heavy galvanized iron; all seams are lapped, riveted and soldered. The finish is a rich, bright cherry-red color; all fittings are of burnished brass, making the filter an ornament to any engine-room. Every part is strongly made, all inside work being rigidly braced and reinforced. Each filter is fitted with a gauge to show the amount of filtered oil in reservoir.

The Burt Manufacturing Co. has a world-wide reputation for its goods, having a regular trade in eighteen foreign countries. It can furnish any size filter desired, and equip large plants with an oil circulating system if desired.

New Column Five-Head Molder.

The accompanying engraving illustrates a new five-head molder built at the Rowley & Hermance Co. branch of the American Woodworking Machine Co. at Williamsport, Pa.

This machine contains all the improvements of the new column molders built by the company, with the addition of an extra top head for making the roughing-out cut. For making hardwood moldings, or for moldings of any description, wooden gutters, hardwood flooring, etc., of the highest possible finish, this machine is especially adapted.

The sideheads are adjusted by patent side-setting device, by which they can be set either straight or at an angle from the front of the machine. They also have lateral and vertical adjustments. The first tophead makes the roughing-out cut. The second tophead makes the finishing cut. The sideheads and the bottom head finish the edges and under side of the work. The outside bearings for the topheads are provided with vertical adjustments. A sectional chipbreaker and pressure shoe are provided for the first tophead. The pressure shoe for the second tophead is also sectional. An automatic chipbreaker is attached to the outside headstock, which adjusts itself automatically to any position which the outside head may be placed.

This machine is built in three sizes, to work nine inches, ten inches and 12x4½ inches thick, and the table will lower twelve inches. It has four rates of feed, viz., twenty-five feet, thirty feet, thirty-five feet and forty feet lineal per minute.

For further information address the company or any of the salesrooms located at 45 South Canal street, Chicago; 109 Liberty street, New York, and 94 Pearl street, Boston.

The Central & Southern Lumber Co.

The Central & Southern Lumber Co., of Cleveland, Ohio, manufacturer and exporter of oak, ash, cottonwood, hickory, gum, red cedar, cypress and yellow pine, in its circular just issued announces the formation of the company and its purposes. This company was formed for the purpose of manufacturing and deal-

cers of the company are Henry J. Emerson, president; William H. Coles, vice-president, and H. R. Gresham, secretary and treasurer. The offices are at Rooms 222, 223 and 224 Society for Savings Building, Cleveland, Ohio.

The Charlottesville & Suburban Street Car Co., of Charlottesville, Va., has elected the following officers: President,

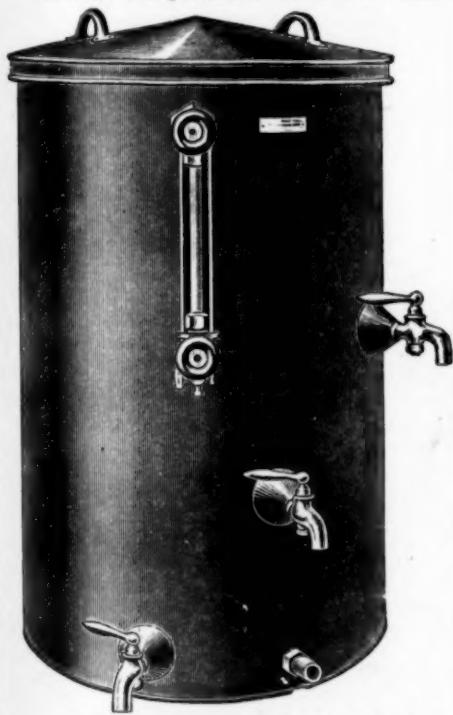
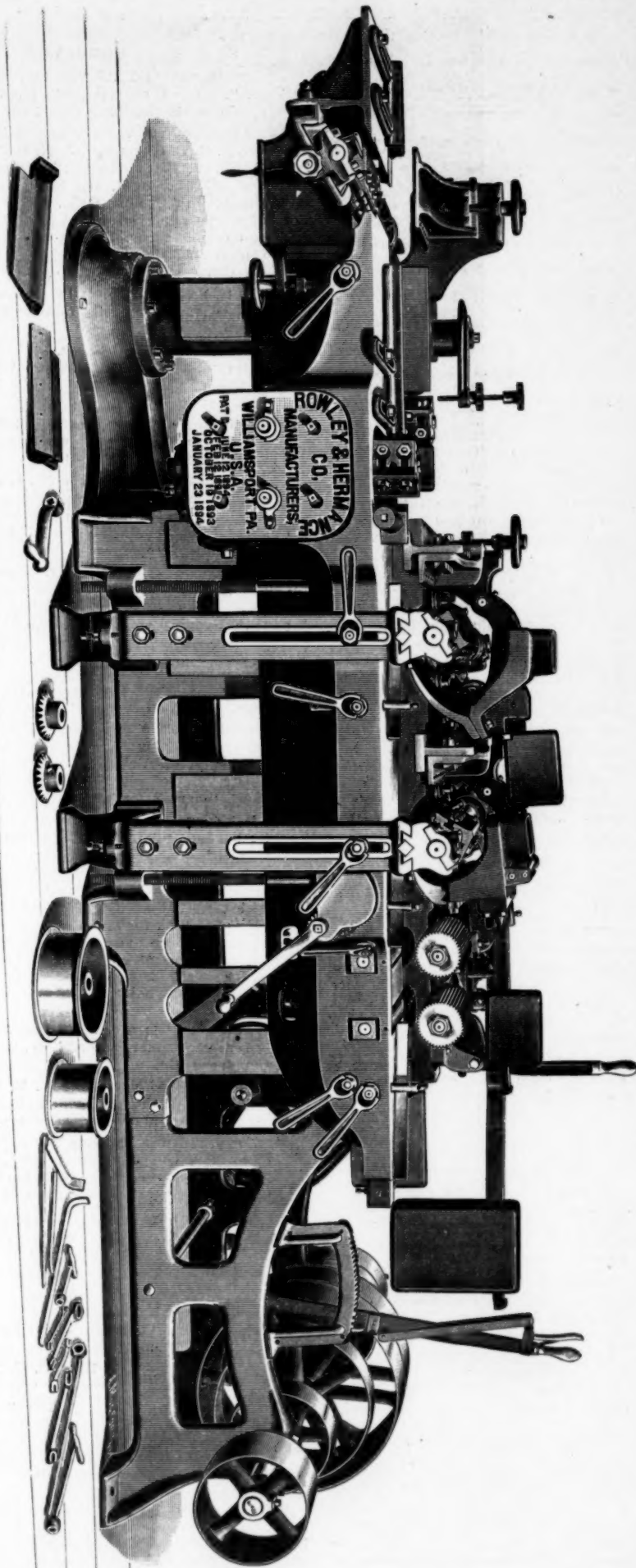


FIG. 1.—THE CROSS OIL FILTER.

ber B, in the direction shown by the arrows, into tube C, and from here onto filter plate D, where the increased weight of the water has a tendency to keep the oil back in tube C. However, the pressure of oil in chamber B forces it down and spreads it out over plate D in a very thin film, which constantly changes surface and grows thinner as it travels from the center to the circumference of plate D, thus exposing every particle of waste oil to the action of the water. It then flows upon plates 1D and 2D, going through the same process in each case. When the oil leaves the filter plate 2D it is in a finely divided state of separation and thoroughly mixed with water, which

NEW COLUMN FIVE-HEAD MOLDER.



ing in hardwoods and yellow-pine lumber and their products, with privilege of dealing in coal and coke. The Central & Southern Lumber Co. is also in the market for portable saw mills on contract and to purchase at right prices, and desires to open negotiations with houses wishing bills of lumber or coal. The company also handles shingles. The offi-

T. O. Troy; vice-president and counsel, Daniel Harmon, and secretary, F. B. Peyton.

Another cargo of live stock has been sent to Havana from New Orleans on the steamship Whitney. The cattle came from Texas ranches, and it is understood other shipments will follow.

CONSTRUCTION DEPARTMENT.

THE MANUFACTURERS' RECORD seeks to verify every item reported in its Construction Department by a full investigation and complete correspondence with every one interested. But it is often impossible to do this before the item must be printed, or else lose its value as news. In such cases the statements are always made as "rumored" or "reported," and not as positive items of news. If our readers will note these points they will see the necessity of the discrimination, and they will avoid accepting as a certainty matters that we explicitly state are "reports" or "rumors" only. We are always glad to have our attention called to any errors that may occur.

* Means machinery, proposals or supplies are wanted, particulars of which will be found under head of "Machinery Wanted."

In correspondence relating to matters reported in this paper, it will be of advantage to all concerned if it is stated that the information was gained from the Manufacturers' Record.

It often occurs that the organization of a new company in any town is not known by the postmaster, and hence letters addressed to the company are returned marked "not known." The Manufacturers' Record reports the first organization of all companies, and our readers, in seeking to get into communication with them, should be very careful in deciding how to address them, and even then they must expect the return of some letters, because of the lack of knowledge on the part of postmasters of all new companies. Criticisms and complaints are invited, as they will the better enable us to guard against errors.

ALABAMA.

Alabama City—Cotton Mill.—The Dwight Manufacturing Co. will double its present mill of 30,000 spindles and 1000 looms; will erect additional main building three stories high, 130x500 feet; cotton warehouse will be fireproof, 150x400 feet; cloth warehouse 150x200 feet; boiler-house, engine-room, etc. An expenditure of \$700,000 will be involved in these improvements.

Birmingham—Barrel Factory.—It is proposed to establish a barrel and stave factory. For information address E. L. Peurudocke, No. 15 South Twentieth street.*

Florence—Electric-light Plant.—The Florence Milling Co. contemplates adding an electric-light plant to its mill.

Gadsden—Flour Mill.—Investigations are being made with a view of organizing a \$10,000 stock company for the erection of a 60 to 80-barrel flour mill. Address Secretary Board of Trade.

Mobile—Water Works.—M. T. Lewman & Co., of Louisville, Ky., have received contract at \$460,201.89 for the construction of the proposed water-works system.

Pratt City—Electric-light Plant.—Paschal G. Shook and associates have received franchise for the establishment of a \$9000 electric-light plant.

ARKANSAS.

Calamine—Flour Mill.—Montgomery & Bristow are preparing to put in a full line of roller-mill machinery.

Wynne—Water-works and Electric-light Plant.—The city will issue bonds for the erection of an electric-light plant and construction of a system of water works. Address William M. Kennedy, chairman board of improvement.*

FLORIDA.

Live Oak—Cotton Gin.—J. W. Sperring is putting in new gins and a steam packing press.

Luraville—Telephone System.—Thomas I. McIntosh, of Luraville; Sidney V. Hough, Lancaster, Fla.; L. T. Boatright, of Live Oak, Fla.; William T. Dees, of Mayo, Fla.,

and others have incorporated the Luraville & Suwannee River Telephone Co. for the construction and operation of a telephone system; capital stock is \$3000.

Plant City.—Cigar Factory.—Van Dyke & Co. will erect a cigar factory, 50x16 feet, one story, as recently reported.

GEORGIA.

Americus—Oil Mill.—The Americus Oil Co., M. S. Harper, manager, will put its mill in operation, having been closed for repairs.

Atlanta—Compress Company.—J. D. Turner, J. S. B. Thompson, J. K. Ottley, Hugh T. Inman, E. C. Peters, Charles T. Turner and Albert Howell, Jr., have incorporated the Atlanta Compress Co., for the purpose of compressing cotton and to deal in cotton and cotton goods, bagging, ties, etc. The capital stock is \$100,000.

Atlanta—Bridges.—The Atlanta & West Point Railroad Co. will construct five bridges and a tunnel. Address George C. Smith, president.

Atlanta—Machine Shops.—C. H. Carter will establish a machine shop. Address No. 29 Gresham street.*

Buckhead—Handle Factory.—P. H. and A. E. McWhorter have purchased 150 acres of timber lands and will establish an axe and hoe-handle factory.

Butler—Halloysite Deposits.—Earl Sloan, of Charleston, S. C., has purchased of J. C. Lamb large halloysite mines near Butler and has the buildings and machinery placed ready to begin operations.

Dahlonega—Gold Mining, Electric-light Plants, etc.—The Dahlonega Consolidated Gold Mining Co. has been incorporated, with a capital stock of \$5,000,000, by J. W. Adams, of Hamilton county, Tennessee; F. G. Thomson, of Lucas county, Ohio; R. C. Thomson and F. R. Adams, of Delaware county, Ohio, and H. D. Ingersoll, of Lumpkin county, Georgia, for the purpose of developing gold, silver, iron and other minerals, developing water-powers, generating electricity, erection of electric-light plants, construction of water works, etc. Address H. D. Ingersoll for information.

Dahlonega—Gold Mining, etc.—David S. Drake, James A. Drake and Alfred M. Gammon, of Steuben county, New York, and Robert W. Walker, of Lumpkin county, have incorporated the Lumpkin Gold Mining Co., with a capital stock of \$50,000, for the purpose of mining for gold and other minerals, developing water-powers for the generation of electricity and the use and sale of such power. These incorporators have purchased from J. W. Woodward, of Dahlonega, 20 acres of gold-bearing land for development; 10-stamp mill is now being built. Address Robert W. Walker, care of J. W. Woodward, Dahlonega, Ga.

Fair Mount—Flour Mill.—W. T. Bradford and others will erect a flour mill, and have not as yet contracted for machinery.*

Forsyth—Knitting Mill.—The organization of a stock company for the erection of a knitting mill is contemplated; names of interested parties will be announced later.

Greensboro—Water Works.—The city is now completing arrangements to contract for the construction of the water works lately noted; J. B. Williams, mayor.*

Madison—Cotton Mill.—The erection of a cotton mill is contemplated. If any definite steps are taken probably C. M. Furlow can give information.

Savannah—Wharf Improvements.—The Plant system is engaged on extensive improvements at the Savannah, Florida & Western wharves. The entire wharf property is being laid to the level of the wharves themselves, requiring about 300,000 cubic yards of dirt. Two large cotton sheds are being erected, and a third one may be built, the dimension of each being 100x400 feet. About 175 men are engaged in the work of these improvements under the direction of T. S. Tutwiler, chief engineer.

Thomaston—Cotton Mill.—It is reported that the Bibb Manufacturing Co., of Macon, Ga., will locate a cotton mill near Thomaston.

White Hall—Cotton Mill.—The Georgia Manufacturing Co., J. R. White, president, will enlarge its cotton mill by the erection of an additional building, to be equipped with 2500 spindles. The present plant has an equipment of 11,656 spindles.

Whitesburg—Paper Mills.—Dr. J. R. Sewell, proprietor of the Whitesburg Paper

Mills, is preparing to put the plant in operation.

KENTUCKY.

Aetnaville—Coal Mines.—The Panther Creek Coal Co., George C. Roberts, secretary, has purchased the Thompson Coal Mines and will put in some new machinery.*

Carrollton—Laundry.—J. A. Hendricks, of Fulton, Ky., will establish a steam laundry in Carrollton.

Frankfort—Street Paving.—The Gaffney Brick Co., of Winchester, Ky., has received contract at \$15,000 for paving six squares of street at Frankfort.

Hickman—Bed Factory.—A \$20,000 company has been formed for the manufacture of the patent Seth Curlin air beds and other articles included under Curlin's patent. Names of interested parties will be announced later.

Oil City—Salt Plant.—The Interstate Petroleum Co. is erecting a salt plant with a proposed capacity of perhaps 100 barrels per day. The process to be employed in the plant has not as yet been decided upon, but some process other than the old, open-vat process will be adopted. The main building is 168x52 feet, and the plant will be enlarged from time to time. Address John H. Compton.

LOUISIANA.

Monroe—Improvements.—A committee has been appointed to prepare an ordinance to be introduced in the city council authorizing an election to be held for the issuance of \$200,000 of improvement bonds for construction of water and sewerage systems, etc. Address "The Mayor."

New Iberia—Water-works and Electric-light Plant.—The city will hold an election to decide the erection of an electric-light plant and construction of water works. Address A. J. Cammack, secretary.

New Orleans—Electric-light Plant.—Cohn & Ber and T. M. Miller & Co. have applied for franchises for the erection of electric-light plants.

Thibodaux—Cannery.—James Bollinger is investigating with a view of establishing an oyster cannery in Thibodaux.

MARYLAND.

Baltimore—Coal Company.—Chartered: The Baker-Whiteley Coal Co. (under the laws of West Virginia) by B. N. Baker, E. H. Ray, Charles H. Brown, Jr., Charles A. Nidoner and William E. Miller. Office, No. 705 Fidelity Building.

Baltimore—Transportation Company.—The Atlantic Transport Co. has been incorporated (in West Virginia), with a capital stock of \$3,000,000, by B. N. Baker, J. Willson Leakin, Waldo Newcomer, J. J. McGloue and E. H. Ray. Office, No. 705 Fidelity Building.

Baltimore—Publishing.—The American Packer Publishing Co. has been incorporated, with a capital stock of \$10,000, for the publication of a trades journal, to be styled the American Packer; incorporators, Edson M. Schryver, Samuel T. Hamilton, John T. Barclay and others. For information address John T. McGarigle.

Baltimore—Musical-Instrument Factory.—The Lyro-Chord Manufacturing Co. has been incorporated, with M. J. Conway, president; J. Henry Conway, secretary-treasurer; Jos. Bernolak, general manager, and J. Rodberg, superintendent. The company has leased a building and installed machinery for the manufacture of musical instruments; will employ 150 hands and produce 1500 lyra chords a week. The principal instrument to be manufactured is a patent device of Jos. Bernolak.

Centreville—Artesian Wells.—The city will make arrangements for increasing its water supply and will probably sink artesian wells for the purpose. Address the "Town Commissioners."

Cumberland—Silk Factory.—The Board of Trade is in communication with a Philadelphia (Pa.) party relative to the establishment of a silk factory to employ 200 persons.

Cumberland—Brewery.—The Cumberland Brewing Co. will enlarge its plant fifteen feet; an additional boiler of 125 horse-power will be put in; feed-water heaters, filters and purifiers will be placed in the boiler-room.

Pocomoke City—Water Works, Sewerage System and Power House.—The city has awarded contract to Van D. Hitesmith, of Knoxville, Tenn., at \$19,500, for the construction of the water works, sewerage sys-

tem and power house, exclusive of the water-pipe contract, which was awarded to M. J. Drummond & Co., of New York city, at \$6726.

Washington, D. C.—Chemical Company.—The Glyza Chemical Co. has been incorporated, with a capital stock of \$10,000, by John B. Danforth, H. M. Friend, J. H. Vermilya, J. C. Gittings and W. C. Baldwin. P. O. address No. 330 412 street, Washington, D. C.

Williamsport—Water-works and Electric-light Plant.—Efforts are being made for the construction of a system of water works and erection of an electric-light plant. Address Town Councilman M. Emmett Cullen.

MISSISSIPPI.

Hattiesburg—Transportation Company.—The Hattiesburg & Lumberton Transportation Co. has been incorporated, with a capital stock of \$25,000, to conduct a general transportation business, by J. H. Phillips and others.

Hazlehurst—Bridges.—The supervisors of Copiah county have adopted plans and specifications for the proposed two bridges to be constructed across Pearl river; contract will be awarded October 3. Address J. D. Damper, clerk.*

Meridian—Telephone System.—The Meridian Telephone Co. has been incorporated by J. D. P. Lewis, J. P. Walker, Henry A. Colt, Henry A. Turner and others with a capital stock of \$16,000.

Natchez—Electric-light Plant.—The Natchez Light, Power & Transit Co., previously reported as to erect an electric-light plant, will shortly ask for bids for furnishing the material and for building the proposed plant. It will be operated by steam and have a capacity of 120 2000-candle-power arc and 2000 16-candle-power incandescent lights. Address A. & M. Moses.*

Stonewall—Cotton Mills.—The Stonewall Cotton Mills, T. L. Wainwright, secretary and superintendent, in a letter to the Manufacturers' Record, states that it will add 500 additional spindles, as recently reported. It will also put in cards and other machinery, except looms, to its new mill No. 2, but not until next summer. The company has added fourteen revolving top cards and a new 40-inch picker for mill No. 1, also new dyeing machine and drying machine, all of which machinery has been ordered; ten cottages are being erected and other minor improvements made, which will cost in the aggregate about \$20,000.

Summit—Bridge.—The board of supervisors contemplate constructing a bridge, iron or steel, 190 feet long, across Bogue Chitto river, near Summit.*

MISSOURI.

Atlanta—Telephone Company.—The Atlanta Telephone Co. has been incorporated, with a capital stock of \$2700, by H. H. Abbott, S. H. Nash, R. B. Turner and others.

Bolivar—Telephone Exchange.—Franchise has been granted to J. C. Pike and H. S. Bruce for the construction and operation of a telephone exchange.

Cassville—Water-works and Electric-light Plant.—The city will erect water-works and electric-light plant. Address Harrison Horine, mayor.*

Central City—Lead and Zinc Mines.—The Yellow Rose Mining Co. has been incorporated, with a capital stock of \$25,000, by A. O. Nicholas, W. F. Hammett, C. H. Hammett, A. Brathwait and M. L. Sears. This company has purchased the Yellow Rose and Oklahoma mines at Central City, and will proceed to further develop same.

Kansas City—Soap Company.—The G. S. Pears Soap Co. has been incorporated, with a capital stock of \$10,000, by G. S. Pears, R. D. Katherns and L. J. Stewart.

Kansas City—Fish Company.—Chartered: The Kansas City Salt Fish Co., by Isaac B. Trask, John A. Harrison and F. H. Klier, with a capital stock of \$25,000.

Macon—Clothing Company.—The Wallace Clothing Co. has been incorporated, with a capital stock of \$8000, by Charles L. Wallace, E. McKee and Edna J. Wallace.

Rolla—Construction Company.—The John Howland Construction Co. has been incorporated, with a capital stock of \$100,000, by W. C. Johnson, Herman Dowd, E. A. Goodhue and F. E. Dowd.

Sedalia—Cold-storage Plant.—The Sedalia Ice & Cold Storage Co. has contracted with

T. H. Johnson for the erection of a brick cold-storage warehouse.

St. Joseph—Land Company.—The Eureka Land Co. has been incorporated by W. P. White, W. L. Elledge, R. T. Connell and others with a capital stock of \$5000.

St. Louis—Dry Goods Company.—Chartered: The Evans Dry Goods Co., by M. L. Solomon, L. Evans and others; capital stock \$10,000.

St. Louis—Catering Company.—Chartered: The Maloney Catering Co., with a capital stock of \$2000, by Thomas F. Maloney and others.

St. Louis—Manufacturing Company.—Chartered: The Zeling-Lecker Manufacturing Co., with a capital stock of \$2000, by Henry Zeling, Robert A. Lecker and Henry R. Feuerborn.

St. Louis—Heating and Lighting Company.—The Empire Heating & Lighting Co. has been incorporated, with a capital stock of \$5000, by S. L. Cohen, J. S. Costella and J. C. Robertson.

St. Louis—Dry Goods Company.—Chartered: The Evans Dry Goods Co., by M. L. Solomon, S. Evans, H. Evans and others, with a capital stock of \$10,000.

St. Louis—Glass-manufacturing Company.—Chartered: The Adolphus Busch Glass Manufacturing Co., with a capital stock of \$2,000,000.

St. Louis—Realty Company.—The Frederick Realty Co. has been incorporated, with a capital stock of \$100,000, by Cliff H. McMillan, Jerre B. Moberly and John C. Kennedy.

St. Louis—Manufacturing Company.—The Cahill-Swift Manufacturing Co. has been incorporated, with a capital stock of \$75,000, by R. B. Swift, Thomas F. Cahill and W. H. Swift.

St. Louis—Stove and Tinware Works.—The A. Giesel Manufacturing Co. will rebuild its plant recently reported as burned.

NORTH CAROLINA.

Apex—Brick Plant.—Jos. J. Rogers and J. B. Parks have established a brick plant.

Edenton—Cotton Mill.—Frank Wood is president, W. O. Elliott, vice-president, and H. C. Prescott, secretary and treasurer, of the Edenton Cotton Mills, recently reported as incorporated for the erection of a cotton mill. The company will put in at present 5000 spindles, with a view of increasing same to 10,000. Work on the buildings will be commenced about February.

Glendon—Coke Ovens.—The North Carolina Coal & Coke Co. will probably erect a number of coke ovens.

Goldboro—Flour Mill.—F. C. Overman will build a complete 50-barrel mill, with corn mill and dryer for meal attached.

Greensboro—Electric-light Plant, etc.—The Industrial Immigration Association will present to the board of aldermen a petition asking that steps be taken for the erection of an electric-power plant for manufacturing and a more complete system of electric lights.

Greensboro—Ice Factory.—W. E. Worth, president of the Greensboro Ice Co., has perfected arrangements for the enlargement of his plant: improvements to include a large water tower for cooling condensed water and a cold-storage house of about 20,000 cubic feet capacity.

Henderson—Cotton Mill.—The Henderson Cotton Mills will erect additional buildings and install from 3000 to 5000 new spindles; present plant has 7000 spindles and 204 looms.

High Point—Cotton Mill.—Efforts are being made for the organization of a company to erect a \$100,000 cotton mill. Names of interested parties will be announced later.

Oxford—Electric-light Plant.—The town authorities are negotiating with a company relative to the erection of an electric-light plant. Address the "Town Clerk."

Oxford—Woolen Mill.—The establishment of a woolen mill is contemplated. Address C. J. Cooper.*

Peachland—Spoke and Handle Factory.—The Peachland Spoke and Handle Factory has been incorporated by J. F. Everett, of Bennettsville, S. C.; W. H. Griffith, W. F. Biddle, S. G. Phifer and W. W. Faulkner, of Peachland, and will establish at once a spoke and handle factory, employing twelve operatives.

Rockwell—Flour Mill.—McCombs, Parks, Holshouser & Misenheimer will erect a roller flour mill.

Sanford—Woodworking Factory.—N. T. Cobb and D. F. Thomas have purchased the Jones Lumber Co.'s old plant and will overhaul and supply same with new machinery

for the manufacture of cabinet mantels, church pews, pulpits, gable trimmings, etc.

Weldon—Cotton Mill.—The citizens will hold a meeting on September 24 to mature plans, etc., for the erection of the proposed cotton mill recently mentioned. Address W. A. Pierce for information.

Weldon—Flour Mill.—Contracts have been signed for the erection of a 100-barrel flour mill. Names of interested parties will be announced later.

Yadkin Valley—Flour Mill.—S. L. Patterson will remodel his mill to the roller system.

SOUTH CAROLINA.

Barnwell—Ginning and Power Plant.—Mike Brown writes the Manufacturers' Record that he will erect a ginning plant of seventy-six 70-saw gins with nineteen 100-horse-power engines and boilers for power, with cylindrical presses, and will want plans and specifications for nineteen ginhouses, power machinery and all the latest improvements for handling seed cotton.*

Gaffney—Telephone System.—R. P. Davis, of Gowdeyville, is interested in the construction of a telephone system from Gaffney to Gowdeyville.

Orangeburg—Water-works and Electric-light Plant.—The city will hold an election on September 27 to decide the issuance of \$40,000 of bonds for the construction of water works and erection of electric-light plant recently noted. Address "The Mayor."

South Carolina—Corn and Grist Mill.—J. D. Harby, No. 49 Lafayette Place, New York city, will erect a corn and grist mill in South Carolina.

Spartanburg—Commission Company.—T. P. Sims & Sons has been incorporated to conduct a general brokerage and commission business by T. P. Sims, L. A. Sims, B. A. Sims and L. P. Sims, with a capital stock of \$3300.

TENNESSEE.

Chattanooga—Wheel Factory.—Wells H. White, of Illinois, is in correspondence with the Chattanooga Chamber of Commerce relative to the organization of a stock company to establish a factory for the manufacture of the White interchangeable carriage wheel.

Chattanooga—Flour Mill.—The establishment of a flour mill, with a capacity of from one to five carloads of grain per week, is contemplated. Address secretary Chamber of Commerce.

Chattanooga—Electric-light Plant.—The Heron Bedstead Co. has contracted with Steffner & Sloan for the erection of a complete electric-lighting plant in its factory.

Fentress County—Oil Refinery.—John H. Compton, of the Interstate Petroleum Co., Oil City, Ky., has purchased the Bob's Bar Well, of Fentress county, and contemplates the erection of a refinery to be located in that section, utilizing oil from wells already developed. The refinery will be small, but complete, and have a capacity of some fifty barrels daily.*

Jackson—Engine and Boiler Works.—The Southern Engine and Boiler Works will put in a quantity of additional machinery. Address Exlie Burkitt, secretary and general manager.

Knoxville.—Chartered: The American-Cuban Co. Address Welker & Parker.

Knoxville—Carriage Works.—The Enterprise Carriage Works has been incorporated by W. R. Glendon, Frank A. Ziege, J. B. Thompson, J. F. Thompson and L. W. McNutt for the immediate erection and operation of carriage works.

Somerville—Water-works and Electric-light Plant.—The city has voted the issuance of \$10,000 of bonds for the construction of water works and erection of the electric-light plant recently noted and work is expected to be commenced shortly. Address T. B. Yancey, mayor.

TEXAS.

Atlanta—Flour Mill.—The erection of a roller flour mill is contemplated. Names of interested parties will be announced later.

Austin—Flour Mill.—The erection of a flour mill is contemplated. Address Carl F. Drake for particulars.*

Fort Worth.—Chartered: The George H. Chase Co., with a capital stock of \$2000, by I. W. Chase, S. R. Williams, George H. Chase and others.

Galveston—House-furnishing Company.—Chartered: The People's House Furnishing Co., with a capital stock of \$50,000, by L. W. Evans, Allen Ellis, W. A. Davis and George Strickhausen to conduct a general merchandise business.

Houston—Grain Company.—Chartered:

The South Texas Grain Co., with a capital stock of \$6000, to conduct a general merchandise business, by Charles P. Shearn, J. V. Neuhaus and W. O. Neuhaus.

Houston—Oil Wells, etc.—The Star & Crescent Oil Co. has been incorporated, with a capital stock of \$60,000, by J. L. Hudson, H. Masterson, J. F. Holt, C. W. Nugent and B. Q. Ward, to prospect for and develop and use coal and other minerals and petroleum, etc.

Houston—Electric-light Plant.—Blake Dupree, receiver of the Citizens' Electric Light & Power Co., has been authorized to issue \$120,000 of bonds for the purpose of rebuilding the electric-light plant recently destroyed by an explosion; he has also contracted with the General Electric Co., of New York, for the erection of the plant.

Nacogdoches County.—Perkins, Matthews & Harris, attorneys of Nacogdoches, have sold to a Northern syndicate the property in Nacogdoches county known as the Oil Springs property. The purchasers contemplate immediate development of this property.

Saluda—Cotton Mill.—W. S. Howland, of Warrensville, is investigating with a view of organizing a company for the erection of a cotton mill in Saluda.

Velasco—Box Factory.—The Velasco Box Co. will greatly increase the capacity of its plant.

Velasco—Sugar Factory.—Capitalists are discussing the advisability of establishing a large sugar factory. Address E. H. Young for information.

Velasco—Handle Factory, etc.—Houston & Liggett, of Lewisburg, Tenn., who recently purchased a large tract of cedar land near Velasco, have constructed wharves and hoisting machinery for the purpose of handling cedar logs, etc., and expect at a later date to establish a factory for the cutting of pencil cedar and the manufacture of handles, etc.

Waco—Cotton Mill.—It is proposed to organize a \$100,000 stock company for the erection of a cotton mill. Address Hon. B. J. Kendrick, chairman Cotton Producers' Congress.

Waxahachie—Cotton Mill.—Thomas P. Cole, John Harrison, Tom A. Ferris, William Stiles and others have been appointed a committee by the mayor to investigate the advisability of erecting the proposed cotton mill.

Waxahachie—Cotton Mill.—There is a movement afoot for the organization of a company to build a cotton mill; E. C. Huckabee can give information.

VIRGINIA.

Alexandria—Jewelry Company.—Chartered: The Harris & Shafer Co., with a capital stock of \$100,000, to conduct a general jewelry business; Edward Harris, president, and C. A. Shafer, secretary and treasurer, both of Washington, D. C.

Alexandria—Furniture Company.—The Rhodes-Walker & Burk Furniture Co. has been incorporated, to conduct a general furniture business, with A. G. Rhodes, of Atlanta, Ga., president; W. T. Walker, of Savannah, Ga., vice-president, and R. G. Burk, of Washington, secretary and treasurer; capital stock \$12,000.

Bertha—Zinc Mines.—The Bertha Mineral Co. has leased and will operate the mines of the Pulaski Iron Co. A large deposit of limonite ores has been discovered on this property and will be thoroughly developed.

Dinwiddie County—Timber Lands.—Renie Butterworth sold for Q. W. Galusha a tract of timber land in Dinwiddie county to the Camp Manufacturing Co., of Franklin, Va., for \$10,000.

Irrington—Saw Mill and Artesian Well.—H. E. Shimp will remove his saw mill from Essex to Irrington and operate on an extensive scale; will also sink an artesian well.

Leesburg—Road Improvements.—The Leesburg & Point of Rocks Turnpike Co., recently chartered, has completed its organization, with E. B. White, president; E. F. Burch, vice-president, and S. S. Lutz, secretary and treasurer. The purpose of the company is to construct a turnpike road from Leesburg to Point of Rocks, and proposals for grading and metaling are now being received at the company's office in Leesburg.

Lynchburg—Buggy Factory.—R. S. Barbour, president of the Barbour Buggy Co., of South Boston, in a letter to the Manufacturers' Record, states that his company will not remove its plant to Lynchburg, as recently stated, but that he, together with Ed C. Hughes, will establish a buggy factory in Lynchburg about December 1, with a capacity of 5000 to 6000 vehicles per day, and will employ from 50 to 100 operatives.

Newport News—Ice Factory.—The Newport News Distilled Ice Co. has been organized by Arthur E. Chapman, James E. Wickham, J. H. Wickham, D. W. Hotchkiss and Walter Hindmarsh for the establishment of an ice factory with a capacity of twenty tons per day.

Norfolk—Filtering Plant.—The board of water commissioners has accepted a proposition from J. W. Ledoux, of New York, to make plans and specifications for a water-filtering plant to cover a bed for 6,000,000 gallons of water daily. Address H. L. Smith, superintendent.

Norfolk—Publishing Company.—The Virginia Life Publishing Co. has been incorporated, with a capital stock of \$1000, for the purpose of conducting a general publishing, printing and advertising business. Herbert M. Nash is president; J. W. Perry, vice-president; J. Davis Reed, secretary, and H. L. Lowenburg, treasurer.

Richmond—Electric-light Plant.—Superintendent T. C. Thompson, of the Fire Alarm Service, will investigate concerning the cost of establishing and operating an electric-lighting plant, with a view of installing one at the Almshouse.

Staunton—Gas Company.—The City Gas Co. has been chartered (in West Virginia), with a capital stock of \$200,000, by R. D. McCue and R. D. Apperson, of Staunton; Harry Morquand, of New York; Lewis C. Harris, of Forest Hill, N. J., and F. B. Poor, of Hackensack, N. J. Address R. D. Apperson.

Wytheville—Bottling Works.—William Cameron, of Petersburg, has purchased the Suther's lithia springs and will establish bottling works to place the water on the market.

Wytheville—Water Works.—The city has determined to award contracts for the laying of considerable new piping for its water system. Plans and specifications are now ready and bids are invited. (See advertisement in Manufacturers' Record.)*

WEST VIRGINIA.

Charleston—Mining and Development Company.—The Cusawaco Mining & Development Co. has been incorporated, with a capital stock of \$500, by D. M. Block, W. F. Grose, J. M. Caldwell and others.

Charleston—Water Works, Electric-light and Gas Plants, etc.—The Kenova Industrial Co. has been organized, with an authorized capital of \$1,000,000, by W. B. Campbell, of Philadelphia, Pa.; Henry Kyd Douglas, Hagerstown, Md.; Walter H. Doyle, Norfolk, Va.; Joseph A. Gale, Roanoke, Va.; W. H. Travers, Charles Town, W. Va., and Stuart Wood, of Philadelphia, Pa., for the purpose of manufacturing gas and electricity, conducting water works, etc.

Charleston—Wagon Supply Company.—The Central Wagon Supply Co. has been incorporated, with a capital stock of \$50,000, by A. H. Conker, J. F. Butts, G. E. Thomas and others.

Charleston—Mining Company.—The Kelly's Creek Mining Co. has been incorporated, with a capital stock of \$100,000, by Harrison B. Smith and George E. Price, of Charleston; J. R. Thomas, of Riverside, and A. C. Finley, of Mammoth, for the purpose of conducting a general mining business.

Kellogg—Powder Factory.—The Phoenix Powder Manufacturing Co., in a letter to the Manufacturers' Record, states that it has not as yet decided to resume operations in its powder factory, as recently reported.

Parkersburg—Mill Company.—Chartered: The Parkersburg Mill Co., with a capital of \$700. Address W. N. Miller for information.

Phillippi—Toilet-supplies Factory.—V. W. Kittle, G. W. Diddle, J. P. Robinson, Frank J. Owen and Fred O. Blue have incorporated the Antiseptic Toilet Manufacturing Co., with a capital stock of \$50,000, for the manufacture of toilet and other compounds on a large scale.

Preston County—Coal Mines and Coke Ovens.—John Silny, of Corry, Pa., one of the incorporators of the Preston Coal & Coke Co. (with principal office at Philadelphia, Pa.) for the purpose of erecting plants to mine coal and manufacture coke in Preston county, is reported as stating that the company will expend \$1,000,000 in the new enterprise. J. M. Guffey, of Pittsburgh, Pa., and Thomas G. Hillhouse, president of the Metropolitan Trust Co., of New York, are also interested.

Ronceverte—Telephone Company.—The Greenbrier & Pocahontas Telephone Co. has been incorporated, with a capital of \$1500. Address A. M. Scott.

Simpson—Coal Mines.—The New York Coal Co. will develop at once 1100 acres of big vein gas coal. Col. Thomas B. Davis,

Keyser, W. Va., can be addressed for particulars.

St. Mary's—Oil and Gas Company.—The Crescent Oil & Gas Co. has been incorporated, with a capital stock of \$1000, by Henry Lenz, of Allegheny, Pa.; John F. Roessle, William H. Roessle, of Pittsburgh, Pa., and William Muchbromer, of Allegheny, Pa.

Taylor County—Coal Mines, etc.—The New York Coal Co. has been incorporated to mine coal and manufacture coke in Taylor county; John T. Davis, Charles S. Robb, of Elkins; Col. T. B. Davis, of Keyser, and C. M. Hendley, of Washington, D. C., are among the incorporators.

West Union—Oil Wells.—Emory Martin and J. Y. McNaught have purchased seventy-one acres of oil lands on Little Flint from Dr. L. B. Charter for \$8000 and will develop same.

BURNED.

Aledo, Texas.—T. J. Overmire's cotton gin. Danville, Va.—The Hotel Normandie, E. H. and R. S. Ellyson, proprietors.

Durant, Miss.—The Commercial Hotel, owned by the Illinois Central Railroad Co.

Izoro, Texas.—A. B. Chambers' cotton gin; loss about \$2500.

Lexington, N. C.—The Holly Grove Roller Flouring Mills; estimated loss \$5000.

Pine Bluff, Ark.—The shops of the Cotton Belt & Northern Railroad; estimated loss \$60,000. Address L. O. Jackson, superintendent and general freight and passenger agent, Onalaska, Ark.

Quanah, Texas.—The Salina Cement Co.'s plant; loss about \$4000.

West Point, Miss.—The wagon and buggy factory of S. N. Murff & Sons; estimated loss \$8000.

Wheeling, W. Va.—Acme Box Co.'s plant; loss about \$3500.

Wheeling, W. Va.—The mustard factory of Exley, Watkins & Co.; estimated loss \$30,000.

BUILDING NOTES.

Albemarle County, Va.—Residence.—H. D. Forsythe, of New Orleans, La., is erecting a residence, to be of brick, with brownstone trimmings and slate roof; the main dwelling is 68x175 feet, three stories, with basement. The building will contain fifty rooms, the basement rooms to have floors of cement and the main halls of tiling; building to cost \$60,000. It is also thought that Mr. Forsythe will expend about \$60,000 in additional outside buildings, making a total of \$120,000.

Athens, Tenn.—Building.—The Woodmen of the World is negotiating with Col. W. G. Hailor, Sr., for site on which to erect a \$10,000 three-story business block.

Baltimore, Md.—Buildings.—Permits have been granted to H. E. Brooks & Bro. to erect nine two-story brick buildings, to cost \$2700 each; to E. K. Bryan, to erect eighteen two-story dwellings, 13x48 feet.

Baltimore, Md.—Buildings.—William Ferguson & Bro. are erecting an addition 50x85 feet for Hochschild, Kohn & Co.; Harry D. Dally, of the Carroll Springs Distilling Co., has completed arrangements for the erection of a corrugated iron building 50x85 feet.

Baltimore, Md.—Buildings.—Permit granted to C. A. Hanrahan to erect a three-story brick dwelling, to cost \$4000; Joseph Schamberger has been awarded contract for the erection of the two-story warehouse of the Nelson Morris Beef Co., recently noted.

Buckhannon, W. Va.—Courthouse.—An election will be held in Upshur county to decide the issuance of \$40,000 of bonds for the erection of a new courthouse. Address "County Clerk."

Catoonsville, Md.—Cottages.—William E. Nagle has been awarded contract for the erection of four frame cottages to cost about \$4000 for the Catoonsville Improvement Co.

Chattanooga, Tenn.—Dwellings.—Col. A. M. Johnson has had plans prepared by H. A. Breeding and will erect six two-story 10-room frame dwellings, and has also awarded contract for the erection of a two-story brick and stone store building to have all modern improvements. Architect Breeding has awarded contract for the erection of a 10-room brick dwelling for C. F. Milton. Mrs. Ruth Heywood has awarded contract for the erection of two two-story eight-room frame dwellings; Architect Breeding made the plans. J. N. Champlain has received permit and awarded contract to N. L. Bott to erect a brick store building, to be built of pressed brick; estimated cost \$1500.

Chattanooga, Tenn.—Building.—R. H.

Hunt has prepared plans for the new building lately reported as to be erected by the publishers of the News. Plans call for a building 25x80 feet, three stories high, front to be of pressed brick, with stone trimmings.

Cumberland, Md.—Church.—The congregation of the M. E. Church South will erect an edifice. Address Rev. J. H. Kuhlman, pastor.

Cumberland, Md.—School Building.—The school commissioners have let contract to the Cumberland Building Co. at \$7725 for the erection of a school building.

Dallas, Texas.—Dwelling.—C. L. Woody will erect a one-story frame dwelling to cost \$2000.

Dalton, Ga.—Depot.—The Nashville, Chattanooga & St. Louis Railroad Co. will have plans prepared for the erection of a depot at Dalton. Address Hunter McDonald, chief engineer, Nashville, Tenn.

Dublin, Ga.—Depot.—The Macon, Dublin & Savannah Railroad and the Western & Tennessee Railroad contemplate the erection of a passenger depot. Address J. T. Wright, general manager of the Macon, Dublin & Savannah, Macon, Ga., for information.

Eastlake, Tenn.—Cottages.—Miller Bros. will erect ten cottages.

Frostburg, Md.—School Building.—The school commissioners have let contract to Johnson Bros. at \$7850 for the erection of a school building.

Kansas City, Mo.—Building.—The New York Life Insurance Co. will erect a \$6000 building.

Loco, Ga.—Jail.—A jail building 32x25 feet will be erected at a cost of \$3000. For further details address T. H. Remsen, ordinary.

Logan County, Ark.—Monastery.—The Order of St. Benedictine will, it is reported, erect a \$1,000,000 monastery. For further information address Rev. Father Lucas, of the Order of St. Benedictine, Paris, Ark.

Louisville, Ky.—Building.—H. P. McDonald has made plans for remodeling Bull Block, to cost \$35,000; will erect three additional stories to five-story building.

Madisonville, Ky.—Hotel.—An addition will be erected to the new Belmont Hotel. Address John G. Morton.

Marietta, Ga.—Hunter McDonald, of Nashville, Tenn., chief engineer of the Nashville, Chattanooga & St. Louis Railroad Co., will arrange for the erection of a new depot at Marietta.

Newberry, S. C.—Warehouse.—It is proposed to form a company to build a warehouse (bonded) for cotton storage, to cost about \$3500, and be equipped with all modern improvements, including automatic sprinkling device for fire protection; W. H. Hunt, George S. Mower and George Johnstone have been appointed a committee to further this project.

Saluda, N. C.—Hotel.—A \$15,000 company will probably be organized for the purchase of the Piney Mountain property, 200 acres, on which it will erect a large hotel. Names of interested parties will be announced later.

Sandersville, Ga.—Courthouse.—The courthouse will be remodeled and improved at a cost of \$10,000. For information address the "County Clerk."

Savannah, Ga.—Hotel.—A \$50,000 stock company will probably be organized for the erection of a large hotel at Tybee Island, in place of the Southern Hotel, recently burned. Address for particulars William M. Bohan, who is said to be interested.

Spartanburg, S. C.—Office Building.—Cleveland Bros. will erect four two-story brick office buildings.

Springfield, Md.—Asylum.—The board of managers of the Second Hospital for the Insane has awarded contract to Henry Smith & Son, of Baltimore, for the erection of four two-story brick buildings, 175x35 feet. Address Dr. George H. Rohe, superintendent, Baltimore.

Stonewall, Miss.—Cottages.—The Stonewall Cotton Mills is erecting ten cottages.

Tampa, Fla.—Hotel.—The Inn, Samuel Hanna, manager, will be improved and enlarged.

Temple, Texas.—Y. M. C. A. Building.—C. F. W. Felt, chief engineer G. C. & S. F. Ry., Galveston, Texas, will receive sealed proposals until October 3 for the erection of a stone and frame three-story railroad Young Men's Christian Association building. Plans can be seen at the office of the division superintendent at Temple or at the office of the city ticket agents at Dallas and Fort Worth, Texas, also at the office of C. F. W. Felt. Usual rights reserved.

Washington, D. C.—College.—A two-story

addition 40x25 feet and fourteen feet high is being erected to the Flynn Business College. The entire building will be heated by hot water. John Houtz is the builder.

Washington, D. C.—Dwellings.—Phillip F. Berry will erect a two-story house 25x57 feet, front of red select brick. Thomas F. Putnam will erect a two-story frame house 29x34 feet. Alber Diehl will erect three brick and stone houses, two stories, 15x25 feet. Annie R. Sypherd will erect a two-story house 20x44 feet, fronts to be of pressed brick and brownstone. Gershan Bradford will erect a two-story house 19x34 feet, fronts to be of pressed brick and brownstone.

Washington, D. C.—Buildings.—B. F. Myers has prepared plans for remodeling the colored Baptist church. Among the improvements are new baptistry, pews, etc. Mrs. Joseph Beale will erect a four-story and cellar dwelling 50x68 feet, to have steam heat, laundry, four bathrooms; Glenn Brown is preparing plans. John Nierendorf will erect a residence. Robert Head has completed plans for a stone and frame dwelling, two-story, 40x60 feet, furnace heat and provided with every modern convenience, cost \$10,000. The Cleveland Park Co. contemplates building a schoolhouse. W. L. Turner will erect a residence, two-story, 17x40 feet, bay fronts of red pressed brick and Hummelstown brownstone, furnace, tiled bath, cabinet mantels, electric fixtures, etc.; plans by B. F. Myers. Dr. J. W. Byrne will erect two two-story stores, heated by furnaces and to have all modern improvements. C. H. Gladden has made plans for a two-story and basement addition for John C. Weeden. Albert Diehl will erect three two-story dwellings to cost \$9000. B. T. Simmons has planned two brick dwellings for Chas. R. Pickford; the first will be three stories, 26x50 feet, with octagon bay, brick and stone fronts, latrobes, cabinet mantels, tiled bath and other improvements to cost \$3500; the second will be 17x60 feet, with stone and brick fronts, and in general construction like the first, and cost \$3500. F. R. Weller has prepared plans for eight dwellings for Charles R. Pickford, two stories and cellar, 17x60 feet, with stone and brick fronts, square bays, furnace, tiled baths, electric bells, etc., to cost \$9000 each. W. E. Mooney has planned a two-story frame dwelling for Lewis Jefferson. M. C. Levy has permit to erect two two-story frame dwellings. G. J. Osterman has planned two frame dwellings for O. S. Pumphrey, to be two stories, with bays, porches, latrobes and other conveniences.

Wilmington, N. C.—Building.—Morris Bear & Bros. will erect a modern three-story brick building.

Wytheville, Va.—Hotel and Cottages.—William Cameron, of Petersburg, will erect a hotel and cottages at Wytheville.

RAILROAD CONSTRUCTION.

Railways.

Addison, W. Va.—The Holly River & Addison Railway Co. has been formed to construct a line between Palmer, on the West Virginia & Pittsburgh Railroad, and Addison, John T. McGraw, at Grafton, is one of the promoters of the enterprise.

Atlanta, Ga.—It is reported that the Atlanta & West Point Railroad Co. has made arrangements to build a railroad in the eastern suburbs, to be operated by steam-power. The line will be about six miles long, and, it is estimated, will cost \$200,000, and will include five bridges and a tunnel. George C. Smith is president of the company at Atlanta.

Baltimore, Md.—James Bond, of Baltimore; Robert Moss and James B. Bannon, of Anne Arundel county, are interested in the Baltimore, Marley & Mountain Bar Electric Railway Co. It is understood that this company is to have \$50,000 capital, and will build a trolley line from Baltimore to a point at the mouth of the Magothy river, a distance of twelve miles.

Clarksburg, W. Va.—It is reported that the project of building the West Virginia Short Line from Clarksburg to New Martinsville, on the Ohio river, has been revived. The road will be forty miles in length. Patrick Bennett is one of the principal promoters of the company. His address is Clarksburg.

Dover, N. C.—The railroad being built by the Goldsboro Lumber Co. has been completed a distance of fourteen miles between Dover and Richland. It will be a feeder for the Atlantic Coast Line. J. J. Street, at Dover, is vice-president of the company.

Fairmont, W. Va.—It is reported that a company is being formed to build an electric railroad between Fairmont and Fairview, in Marion county.

Houston, Texas.—It is reported that the new owners of the Texas Western Railway have determined to rebuild the line between Houston and Sealy, Texas, a distance of forty-eight miles. John W. Maxey, of Houston, is making surveys for the work.

Jonesboro, Ark.—The Jonesboro, Lake City & Eastern Railroad has been completed to Monette, Ark., a distance of ten miles from Lake City. It is understood that five miles additional is to be built immediately. W. H. Stevens is auditor of the company.

Little Rock, Ark.—Henry Woods, general manager of the Choctaw, Oklahoma & Gulf Railroad Co., writes the Manufacturers' Record that surveys are being made for the Choctaw & Memphis road, but that no contracts have been let as yet for its construction. The main line will consist of 140 miles in Arkansas and thirteen miles in Indian Territory. Mr. Woods' address is South McAlester, I. T. The Choctaw & Western Construction Co. has been incorporated in New Jersey with a capital of \$600,000 to build the line. The incorporators include Francis I. Gowen and Charles E. Ingersoll, of Philadelphia. Mr. Gowen is president of the Choctaw, Oklahoma & Gulf Railroad.

Louisville, Ky.—It is stated that the Louisville Railway Co. has determined to build a trolley line to Crescent Hill, in the suburbs. D. J. Minary is president of the company.

Marion, N. C.—The South Carolina & Georgia Extension Railroad Co. has been chartered by John J. Collier and Evan R. Dick, of Philadelphia, and Samuel Hunt, of Cincinnati, O. The capital is \$500,000. The company, it is stated, intends building a line from the boundary of North and South Carolina through Marion to the Tennessee State line, a distance of about 140 miles. [This line is supposed to be a part of the railroad to connect the two sections of the Ohio River & Charleston, in Tennessee and North Carolina, which has already been planned by the latter company. Samuel Hunt is president of the Ohio River & Charleston.—Ed.]

Milledgeville, Ga.—The Central of Georgia Railway Co. has completed a branch two miles long to the State Lunatic Asylum. It is reported that the company is about to build an extension near Barnesville, about one mile long, and a branch near Butler one and one-half miles long. John M. Egan is vice-president of the company.

Moscow, Texas.—The Moscow, Camden & San Augustine road has been completed as far as Moscow. It is to be built from Moscow to San Augustine and a point in Tyler county, in all seventy-five miles. W. H. Carter, at Camden, may be addressed.

Oregon, Mo.—Surveys have been made for a railroad between Oregon and Forest City, which is to be built by the Oregon & Northern Railroad Co. Grading contracts have also been let. It is stated that the company will purchase 56-pound rails. Irving H. Wheatcroft is president of the company.

Raleigh, N. C.—About thirteen miles of the Raleigh & Cape Fear Railroad have been completed and are in operation. The company, it is stated, has ordered five miles more of rails, which are to be laid as soon as possible. John A. Mills, of Raleigh, is one of the principal promoters of the road.

Southport, N. C.—The Southport Terminal Railroad Co. has been incorporated by H. H. Dougherty and others to build the proposed railroad between Southport and Wilmington, a distance of about thirty miles. The capital stock is \$250,000, and the directors are W. A. Cullen, Conrad Kirk, Henry McDougal, P. Murray, Thomas Hawkins and H. H. Dougherty, of Newark, N. J.; George H. Bellamy, El Paso, N. C.; Franz Mayer, C. C. Brown and A. Vorhees, New York. [This is understood to be a revival of the plan to build a road between the towns mentioned on which work was commenced about two years ago.—Ed.]

Statesboro, Ga.—R. Simmons, one of the directors of the Statesboro & Egypt Railroad Co., informs the Manufacturers' Record that this line will not be built if the proposed road from Cuyler to Statesboro is completed. The latter line will be a branch of the Central of Georgia and has been surveyed.

St. Louis, Mo.—It is stated that work is about to begin on the electric road from the southern suburbs into Jefferson county, which is being promoted by the United Traction Co. Henry Scullin is general manager.

Sumter, S. C.—It is stated that surveys are being made for the Sumter & Wateree Railroad, of which J. D. Blanding, of Sumter, is president. The line will be sixteen miles long.

Thibodaux, La.—Tracklaying has begun on the railroad line between Thibodaux and Napoleonville, a distance of nine miles. The

company building it is the Southern Pacific. J. T. Mahl, at Houston, Texas, is engineer.

Trimble, Mo.—R. Gillham, chief engineer of the Kansas City, Pittsburg & Gulf Railroad, writes the Manufacturers' Record that the branch between Trimble and Gower, eleven miles long, has been surveyed and contracts let. It will be built within the next three months. Address at Kansas City, Mo.

Tunnelton, W. Va.—It is reported that the plan to build a railroad in Preston county through the Reno Coal Fields has been revived, and that its terminus will be a point near Tunnelton. Among those reported as interested are John Sliny, of Corry, Pa.; J. M. Guffy, of Pittsburg, and Thomas J. Hillhouse, president of the Metropolitan Trust Co., of New York.

Washington, D. C.—It is reported that the City & Suburban Railway Co. has secured the partly completed line between Washington and Berwyn Heights, and will build it at once. W. Kesley Schoepf, at Washington, may be addressed.

Welch's, W. Va.—It is reported that Edward P. Rucker, of Charleston, W. Va., is one of the principal promoters of the Sandy Huff Railway, which, as recently stated in the Manufacturers' Record, is to be built from a point on the Norfolk & Western to the Guyandotte river.

Windsor, N. C.—It is stated that the Wellington & Powellville Railroad has been completed between Windsor and Ahsok, a distance of twenty-one miles. It is to be a feeder of the Atlantic Coast Line. J. W. Branning, at Edenton, N. C., is president of the company.

Street Railways.

Americus, Ga.—Messrs. Warwick & Son have made surveys for an electric street railway to be about five miles long.

Beaumont, Texas.—The promoters of the street railroad in Beaumont include J. C. Ward, J. T. Langham and J. F. Kelth. The company has received a franchise to begin work.

Chattanooga, Tenn.—The work of changing the Belt Railroad into an electric line is nearly completed. The trolley system will be used as far as East Lake, in the suburbs. The Chattanooga Rapid Transit Co. is constructing the road.

Galveston, Texas.—The City Railway Co., it is reported, has purchased 300 tons of rails for improvements to its line. A quantity of rolling stock has also been purchased. R. B. Baer is receiver of the company.

Greensboro, N. C.—The Improvement Association is making an effort to build the proposed street railroad in Greensboro. The secretary of the association will give further information.

Washington, D. C.—J. D. Croissant, vice-president of the Washington & University Railroad Co., writes the Manufacturers' Record that this line will be operated by a trolley system, and will be between three and four miles long. No arrangements have been made as yet to build it. Mr. Croissant's address is Room 31, Ohio Bank Building.

Wheeling, W. Va.—It is reported that work is about to begin on an extension of the Wheeling Street Railroad to Martin's Ferry. A. M. Jolly, at Wheeling, is a director of the company.

Machinery, Proposals and Supplies Wanted.

Manufacturers and others in need of machinery of any kind are requested to consult our advertising columns, and if they cannot find just what they wish, if they will send us particulars as to the kind of machinery needed we will make their wants known free of cost, and in this way secure the attention of machinery manufacturers throughout the country. The MANUFACTURERS' RECORD has received during the week the following particulars as to machinery that is wanted.

Boiler.—Carolina Rice Mills, S. Deans, secretary, Goldsboro, N. C., wants a 125-horse-power tubular boiler.

Boiler and Engine.—A. B. Seale, Beaumont, Texas, wants 100-horse-power engine and boiler suitable for driving shingle machinery; second-hand.

Boiler and Engine.—Builders' Supply Co., Beth Canfield, president, St. Augustine, Fla., is in the market for a pair of 6x6 single-cylinder marine engines and upright boiler, and entire outfit for a double-propeller tugboat.

Boiler and Engine.—Wilson & Jastremski, Houma, La., will want 125-horse-power boiler and one 75-horse-power engine.

Boiler and Engine.—William P. Bacon, Bacon, Del., wants 30-horse-power portable boiler, with 20-horse-power engine attached; second-hand.

Boiler and Engine.—W. C. Holt, Montgomery, Ala., wants a 20 to 25-horse-power boiler and 15 to 20-horse-power engine.

Bollers and Engines.—See "Cotton Ginnery, etc."

Bridges.—The supervisors of Copiah county, Mississippi, will award contract October 3 for the construction of two bridges, the center steel span of each to be 220 feet long, have 16-foot roadway, capacity 800 pounds per line foot, piers 5x32 feet high on pile; plans and specifications have been adopted and are now on file. Address J. D. Dampier, county clerk, Hazlehurst, Miss.

Bridge.—The board of supervisors, Summit, Miss., wants plans and specifications on the construction of an iron or steel bridge 190 feet long to be built across Bogue Chitto river, near Summit.

Cooking Specialties.—American Specialty Co., No. 213 Main street, Houston, Texas, wants to communicate with parties handling the revolving cake, griddle and egg turner.

Cotton Ginnery, etc.—Mike Brown, Barnwell, S. C., writes that he wants estimates on nineteen 100-horse-power engines and boilers erected complete and ready for operation, and on seventy-six 70-saw gins, with latest improvements, for the handling of seed cotton; also wants plans and specifications for nineteen ginhouse plants of the most improved style.

Cotton-mill Machinery.—The Alabama Cordage Co., Montgomery, Ala., wants to buy one beater breaker lapper, second-hand.

Dredging Plant.—Wm. T. Rossell, major engineers, United States Engineer Office, Mobile, Ala., will receive proposals for hire of dredging plant for Mobile river and bay, Alabama, until October 13. Information furnished on application.

Electric Lighting.—The city of Huntington, W. Va., will let contract on October 1 for lighting the city with seventy-five arc lights of 2000 candle-power, to burn all and every night. Two bids are wanted—one for five and one for ten years; city to furnish one side of all streets for placing poles, lines, etc. Usual rights reserved. For further information address C. T. Taylor, city clerk.

Electric-light Machinery.—Wilson & Jastremski, Houma, La., will want one 500-light dynamo.

Electric-light Plant.—The city of Wynne, Ark., will soon want bids on the erection of an electric-light plant. Address Wm. M. Kennedy, chairman board of improvement.

Electric-light Plant.—The Natchez Light, Power & Transit Co., Natchez, Miss., will want bids on the erection and equipment of an electric-light plant, to be operated by steam and have a capacity of 120 2000-candle-power arc and 2000 16-candle-power incandescent lights. Address A. and M. Moses.

Electric-light Plant.—The city of Cassville, Mo., wants bids on the erection of an electric-light plant. Address Harrison Horine, mayor.

Flour Mill.—Carl F. Drake, Austin, Texas, wants to correspond with manufacturers of or dealers in flour-mill machinery.

Flour-mill Machinery.—W. T. Bradford, Fair Mount, Ga., will probably want prices on flour-mill machinery.

Lamp Shades.—American Specialty Co., No. 213 Main street, Houston, Texas, wants to communicate with parties handling colored-paper folding lamp shades.

Machine Tools.—C. H. Carter, No. 29 Gresham street, Atlanta, Ga., wants one screw-cutting lathe, sawing 24 inches by 18 feet between centers, with chuck and necessary face plates; one screw-cutting lathe sawing 16 inches by 5 feet between centers, with chuck and face plates; one back-gear drill press to bore to center of 30-inch circle, with sockets for drill from 1½ inches down to ½ of an inch, and one drill chuck from ½ of an inch down; one 18-inch shaping machine made so as to pass a long shaft under ram of machine. These tools all to have proper countershafts and driving pulleys. Also want prices on new or second-hand twist drills from 1½ inches down; also on taps, dies and reamers and tool grinder.

Machinery and Tools.—Proposals will be received at the Bureau of Supplies and Accounts, Navy Department, Washington, D. C., until September 27 to furnish at the Navy Yard, Norfolk, Va., a quantity of machinery and tools. Blank proposals will be furnished upon application to the Navy Pay

Office, Norfolk, Va. Edwin Stewart, paymaster-general, United States Navy.

Marine Machinery.—See "Boiler and Engines."

Mining Equipment.—See "Pumps."

Oil Refinery.—John H. Compton, of the Interstate Petroleum Co., Oil City, Ky., wants to correspond with manufacturers of oil-refinery material.

Piping.—New River Coke Co., Charles Catlett, general manager, Caperton, W. Va., wants 1400 feet second-hand three-inch pipe with connections.

Piping.—The city of Wytheville, Va., is asking bids on supplying and laying considerable new piping for its water system. Plans and specifications are now ready. (See advertisement in Manufacturers' Record.) Bids will be opened October 17. Address Messrs. J. E. Perkins, V. H. Gibboney and G. T. Beuchler, water committee.

Printing Machinery.—William P. Bacon, Bacon, Del., wants a wood-printing press.

Pumps.—Panther Creek Coal Co., George C. Roberts, secretary, Aetnaville, Ky., is in the market for pumps, etc.

Railway Equipment.—Panther Creek Coal Co., George C. Roberts, secretary, Aetnaville, Ky., is in the market for 12-pound iron or steel "T" iron rails.

Railway Equipment.—Bryan & Bock, Keyser, W. Va., are in the market for a second-hand small tramroad engine.

Railway Equipment.—W. C. Holt, Montgomery, Ala., wants 13-ton standard-gauge Shay locomotive, wide tread; second-hand.

Railway Grading.—Atkinson & Northern Railway, O. G. Wales, manager, Atkinson, Neb., wants bids on grading a 25-mile road.

Saw Mills.—Central & Southern Lumber Co., 222 Society for Savings Building, Cleveland, O., is in the market for portable saw mills on contract and to purchase at right prices.

Saw-mill Machinery.—A. B. Collins, Merry Mount, N. C., is in the market for a light saw mill, to run with from six to eight horse-power.

Steam Specialties.—Peter Bauer Drug Co., Louisville, Ky., wants to correspond with manufacturers of burners to be used under a vertical steam boiler for natural-gas fuel.

Water Works.—Sealed proposals will be received by the Wagoner Water Works Co., of Wagoner, I. T., until October 15 for the construction of a water-works plant. Plans may be seen and specifications had on application at the office of the company and at the office of J. S. Thatcher, C. E., Dallas, Texas.

Water Works.—The city of Cassville, Mo., wants bids on the construction of a system of water works. Address Harrison Horine, mayor.

Water Works.—The city of Wynne, Ark., will soon want bids on the construction of a system of water works. Address Wm. M. Kennedy, chairman board of improvement.

Water Works.—The city of Greensboro, Ga., will open bids October 6 for the construction of water works. Bids will be received for the whole or for parts of the contract. (See advertisement in Manufacturers' Record.) For specifications, etc., address J. B. Williams, mayor.

Woodworking Machinery.—Greer Machinery Co., Knoxville, Tenn., is in the market for four second-hand 32 or 34-inch "Defiance" spoke lathes.

Woodworking Machinery.—American Emery Wheel Works, No. 424 Atlantic avenue, Boston, Mass., is in the market for a second-hand saw table of medium size.

Woolen Mill.—C. J. Cooper, Oxford, N. C., wants estimates on woolen-mill machinery and information regarding the process of manufacture, etc.

Woodworking Machinery.—T. B. Matthews, Goldsboro, N. C., wants a full line of spoke and rim machinery.

Woodworking Machinery.—Wm. P. Bacon, Bacon, Del., wants light saw mill and wood-printing press.

Woodworking Machinery.—E. L. Peuradocke, No. 15 South Twentieth street, Birmingham, Ala., wants to correspond with dealers in and manufacturers of barrel and stave machinery.

The Eureka Works.—The third annual picnic of the employees of the S. Howes Co. (Eureka Works), of Silver Creek, N. Y., was held on August 20. With perfect weather conditions and an enthusiasm for outdoor games, those present at the merry-making succeeded in enjoying themselves to the utmost limits. A fine photograph of the employees was obtained. The Eureka Works is one of the largest plants devoted to the production of mill machinery and supplies.

TRADE NOTES.

A Donation.—The National Starch Manufacturing Co., of Cincinnati, O., has donated two barrels of starch for use at the Clemson Textile School, at Clemson College, South Carolina.

Machinery Bargains.—Several equipments of machinery are in the hands of the C. C. Wormer Machinery Co., of 51 Woodbridge street, West Detroit, Mich. These equipments are offered for sale at bargain terms.

Change of Offices.—Certain changes have been made in the branch offices of the Fort Wayne Electric Corporation, of Fort Wayne, Ind. For a correct list of the branch offices of this widely-known electrical company see its advertisement.

Tolamine Colors.—Messrs. A. Kilpstein & Co., New York, call attention to their new tolamine colors, comprising greens, violets and blues, for direct-dyeing on cotton. These colors are very desirable, their principal characteristics being great fastness to soap and light.

It Is Popular.—As an indication of the popularity of the Stempel fire extinguisher, it is being used very extensively in Philadelphia by some of the largest corporations, including a number of churches and banking companies. H. R. Bennett, of 1217 Filbert street, Philadelphia, is Eastern agent for the manufacturers of this extinguisher.

Buyers' Headquarters in Philadelphia.—An important addition to the Philadelphia (Pa.) Bourse was the recent establishment of buyers' headquarters. These headquarters are very convenient and all buyers visiting Philadelphia are invited to use them. The headquarters practically give the benefit and use of private offices in the city gratis and the opportunity is a permanent feature of the Bourse.

Anthracite Coal in Europe.—The secretary of the Anthracite Coal Operators' Association, Henry S. Fleming, will sail for Europe about September 17 for the purpose of ascertaining what market exists there for anthracite coal. It is proposed to investigate this question thoroughly as regards the market in various parts of Europe and at all points where there seems a possibility for its introduction.

The Prior Roller Gin.—Extensive tests of the new Prior roller gin are to be made within the next two weeks at the ginneries of H. F. Dutton & Co., at Gainesville, Fla., when the efficacy of the new roll will be effectually tried upon all kinds and conditions of cotton. Many ginneries from the surrounding section have signified their intention to be present at the tests, which will have an important bearing upon the future handling of the cotton.

Drills for Russia and Sumatra.—The American Diamond Rock Drill Co., of New York, reports among recent orders a drill of 1500 feet capacity for Russia, hand drills for the Klondike and Mexico, a No. 7 drill for Northern New York, two 1000-foot drills for Mexico and one drill for Sumatra. The company also reports a marked increase during the past two months in the diamond drill supply trade, both domestic and export, and considerable activity in orders for allied machinery.

A Special Exhibit.—The exhibition department of the Philadelphia (Pa.) Bourse will arrange for a special display of agricultural machinery and accessory lines of manufacture for next month. On October 19, 20 and 21 there will be held the annual convention of the Association of Agricultural Implement and Vehicle Manufacturers, and it is proposed to make this meeting the medium for calling special attention to the apparatus to be exhibited as above noted. All the space for this proposed exhibit has been taken.

National Road Parliament.—On October 8 the National Road Parliament will convene in the grounds of the Transmississippi Exposition, at Omaha, Neb. The objects of this meeting will be to awaken and promote a general interest in the improvement of the public roads, discuss the best methods for building and maintaining them and to promote good roads legislation. Public bodies of every character are invited to send representatives. Notice of this meeting, as outlined here, is given by the office of road inquiry, of the United States Board of Agriculture.

A Complete Bridge Works for Sale.—Messrs. C. R. Baird & Co., of Philadelphia, Pa., are offering for sale a complete bridge works. The works are located at Potts-

town, Pa., being known as the Cofrode & Saylor Bridge Works, and is one of the most complete plants of its kind in the country. The entire equipment was specially designed for the manufacture of all kinds of structural work, and is capable of handling the heaviest work to the best advantage. A thorough description of this bridge plant, giving list of all the machines installed in it, can be obtained by addressing Messrs. Baird & Co.

Draft Apparatus.—A good indication of the revival of business activity among the textile mills of this country is denoted by the number of orders recently placed for the equipment of new buildings. The Buffalo Forge Co., Buffalo, N. Y., reports a number of such sales, among the most recent being an outfit for the Sayles Bleacheries, Saylesville, R. I., and a complete heating and ventilating outfit for the Fashion Knitting Mills, Arcade, N. Y. The company will also build the induced-draft apparatus for the power plant of the Howland Paper Co., Sandy Hill, N. Y., involving the use of two large steel-plate steam fans, with engines direct connected to the fans, which are equipped with water-cooling bearings.

A Giant See-saw.—The see-saw at the Omaha Exposition is built entirely of steel (200,000 pounds) furnished by the Schultz Iron & Bridge Co., of Pittsburg, Pa., for its construction. It was designed by Mr. A. J. Dyer, of Nashville, Tenn. The see-saw is operated by electricity, the special motor used being built by the Triumph Electrical Co., of Cincinnati, while the gearing and machinery was built by the Central Iron Works, of Quincy, Ill. The see-saw is built with a factor of safety of nine. The see-saw is equipped with two Rushmore searchlights of 56,000,000 candle-power, which makes an ascension at night as interesting as a trip in the day. The see-saw is patented and owned by Mr. C. H. de Zavallos, of Nashville, Tenn.

TRADE LITERATURE.

A Poster.—The Egan Company, of Cincinnati, O., is sending to its present and prospective customers a wall poster showing several dozen of its principal woodworking machines. This company has one of the best-equipped plants for producing woodworking machinery for factories of every kind.

Telephony.—There has been issued a booklet regarding a course in telephony given by the International Correspondence Schools of Scranton, Pa. Instruction papers for this course were prepared by Mr. Kempster B. Miller, one of the best-known telephone experts. The great importance of this industry insures a wide interest in this course of instruction by correspondence.

The Tool Catalogue.—One of the most complete tool catalogues issued is that of Messrs. Montgomery & Co., of 105 Fulton street, New York city. This book of over 500 pages is fully illustrated and gives full particulars of the numerous tools and devices listed, those embodied being ones that have been most called for in the course of the firm's business. All users of tools, machinery and supplies in all branches of the mechanical trades should have a copy of this book and its discount sheet.

The Lunkenheimer Catalogue.—The Lunkenheimer Co., of Cincinnati, O., operates one of the most extensive establishments in the world devoted to the production of the line of goods described and illustrated in the catalogue for 1898. Combining the qualities of very best workmanship and material, latest-improved designs, etc., the Lunkenheimer product is most extensively known. The line includes brass and iron valves, injectors, whistles, lubricators, oil and grease cups and steam specialties.

General Electric at the Transmississippi Exposition.—For distribution at the Transmississippi Exposition at Omaha, the General Electric Co. issued from its press a neat little brochure very fully illustrated. As all the machinery used to light the grounds and buildings of the exhibition and to supply the power was furnished by the General Electric Co., the types of apparatus shown in the book enable the visitor readily to identify each type as he meets with it in the exhibit or in any part of the working plant itself. Many thousands of these little books have been printed, and the demand for them at the exhibition has kept the company's presses fully occupied.

Painting on Metals with Specifications.—Of much interest is a copy of Prof. A. H. Sabin's new work on "Painting on Metal

with Specifications." This book has been prepared at considerable expense and with the best facilities, a large quantity of the subject matter having been submitted in manuscript to the criticisms of eminent engineers in all parts of the country. The information contained in this book is of value to those interested in the painting of metals in structures, the subject being treated at length most thoroughly. The publishers of this book, Messrs. Edward Smith & Co., of 45 Broadway, New York city (varnish makers and color grinders), announce that it will be on sale by the leading scientific book-dealers at the retail price of \$1.25.

Gearing and Pulleys.—A catalogue of gearing and pulleys is issued by the Christiana Machine Co., of Christiana, Pa. The company conducts a general foundry and machine business, manufacturing shafting, pulleys, hangers, gearing, turbine water-wheels and general mill machinery, making special gears and pulleys of all kinds to order. It is seen by this list that the Christiana company has a fine assortment of gearing patterns, and that prices are given for gears as well as pulleys, which is a matter of great convenience to those wishing to purchase. All the prices are subject to discount. One of the company's leading specialties is gearing, and since January 1 it has sold of filled gears alone eighty-two pairs and many times that number of plain iron gears. The list gives the present patterns, which are all comparatively new, of latest designs, well proportioned and true. This list is constantly being increased. Mortise or skeleton gears constitute a large part of this company's output, and it is well equipped for this line of work. Sales by the Christiana company of its improved balanced gate turbine wheels made since the first of the year include shipments to Tennessee, West Virginia, Pennsylvania, Maryland, North Carolina, New York, Kansas, Alabama, Vermont, Connecticut, Central America and Virginia.

Cottonseed-Oil Notes.

The Corsicana Cottonseed-oil Mill, which has been shut down since early in this year, will start up at once, with a full stock of new seed on hand.

The large oil-mill plant built at Seguin, Texas, last year by the National Cotton Oil Co., of New Jersey, at a cost of \$120,000, is now running on full time, and every prospect of a successful crushing season.

The Groesbeck Cotton Oil Mills will be ready in a few days to commence the crushing season. The company is receiving large quantities of seed, and has contracted to feed 2000 beef cattle, the pens for which are now being built.

The Richmond Cotton Oil Co. is preparing to start up its Chattanooga plant, the fall season opening about October 1. The Chattanooga Cotton Oil Co. was the former name of this concern, which has been merged into the Richmond Cotton Oil Co. E. G. Richmond, of Chattanooga, is the president; W. D. Roberts, manager, and H. Bond, secretary and treasurer. The crushing season about to open promises to be a most successful one with this company.

The market for cottonseed products in New Orleans is about steady, with a moderate offering of old stock. Prices for oil are unchanged, and for cottonseed meal the figures are generally firm, but not notably higher. There is considerable business in foreign export, and the demand is likely to be quite active for the new commodity. Receivers' prices are as follows: Cottonseed, \$5 per ton (2000 pounds) on the river bank from New Orleans to Memphis; cottonseed meal jobbing at depot, \$16.50 per short ton and \$18.50 per long ton for export f. o. b.; cottonseed oil, 16 to 16½ cents per gallon for strictly prime crude; in bulk, 14½ to 15 cents, and 21½ cents for refined oil at wholesale or for shipment; oilcake, \$18.50 per ton f. o. b.; linters—A, 3 cents per pound; B, 2½ cents; C, 2¼ cents; hulls delivered at 7½ to 10 cents per 100 pounds, according to the location of the mills.

FINANCIAL NEWS.

The Manufacturers' Record invites information about Southern financial matters, items of news about new institutions, dividends declared, securities to be issued, openings for new banks, and general discussions of financial subjects bearing upon Southern matters.

New Corporations.

It is reported that J. G. Wilkinson and others are preparing to open a bank at Petersburg, Tenn.

The Dewey Investment Co., of Forney, Texas, has been formed, with \$10,000 capital, by W. M. Reagan and others.

New Securities.

The town of Aiken, S. C., has voted in favor of issuing \$10,000 worth of sewer bonds.

The town clerk of Laurel, Miss., will receive bids until January 1 for \$5000 worth of 6 per cent. school bonds.

S. A. Kean, of Chicago, has purchased the issue of water-works bonds of Summit, Miss., amounting to \$15,000.

The Hesperian Building and Loan Association, of Gainesville, Ga., has decided to increase its capital from \$200,000 to \$300,000.

The People's Building and Loan Association, of Columbia, S. C., has determined to increase its capital from \$200,000 to \$400,000.

The Trowbridge, MacDonald & Niver Co., of Chicago, has purchased an issue of \$25,000 in bonds of Carthage, Mo. The bonds bear 4 per cent. interest.

It is reported that the town of Wynne, Ark., will issue bonds for improvements to bear 6 per cent. interest. Wm. M. Kennedy is chairman of the board of improvement.

The question of issuing bonds by the city of Atlanta, Ga., will be decided at the election to be held on October 5. The proposed issue amounts to \$200,000, and will bear 4 per cent. interest.

Messrs. Sperry, Jones & Co., of Baltimore, have succeeded in purchasing the issue of bonds of Mobile, Ala., amounting to \$750,000. The premium on the entire amount is \$4222.50. The bonds bear 4½ per cent. interest.

Messrs. Rudolph Kleybolte & Co., of Cincinnati, have purchased an issue of \$100,000 worth of 5 per cent. bonds of Houston, Texas, paying 106.526. The sale of these bonds is disputed by W. J. Hayes & Son, of Cleveland, who claim to have legally purchased them.

Dividends and Interest.

The Cornelius Cotton Mill Co., of Davidson, N. C., has declared a dividend of 6 per cent.

The Crown Cotton Mills, of Dalton, Ga., has declared an annual dividend of 10 per cent.

The Baxley Banking Co., of Baxley, Ga., is arranging to declare a dividend at its next annual meeting.

The Bank of Ascension, of Donaldsonville, La., has declared an annual dividend of 8 per cent., in addition to increasing its surplus \$5000.

The City Railway Co. at Louisville, Ky., has declared a semi-annual dividend of 2½ per cent. on its preferred stock.

Financial Notes.

Roger A. Frey has been elected cashier of the Continental National Bank of Baltimore.

Julius W. Beilstein has been appointed general agent for the Royal Exchange Assurance, with offices at Louisville, Ky.

A. M. Baldwin has been elected president of the First National Bank, of Montgomery, Ala., succeeding Henry C. Tompkins, deceased.

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Illinois Central Extension.

A Chicago dispatch states that the Illinois Central will begin the construction of a direct line from Chicago to Omaha, Neb., early in the spring. Only 125 miles of new road are required to complete the line. The company will tap its Sioux City line at Fort Dodge, Iowa, and will build thence west to Council Bluffs. Articles of incorporation for the new road have been filed in Dubuque, Iowa, the capital stock named being \$5,000,000.

Officers Elected.

The Young Men's Business League of Chattanooga has elected E. P. Eager secretary of the association.

The Commercial Club of Kansas City, Mo., has elected the following officers: H. W. Evans, president; U. S. Epperson, first vice-president; C. J. Schmelzer, second vice-president; W. B. Thayer, treasurer; E. M. Clendening, secretary.

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The Pennsylvania Railroad Co. has arranged for a special eight-day personally-conducted tour to the Trans-Mississippi and International Exposition at Omaha on October 1, allowing four full days at the Exposition. Round-trip tickets, including transportation and Pullman berth in each direction, meals in dining car going and returning, hotel accommodations and meals at Omaha, admissions to the Fair, and carriage drive and hotel accommodations at Chicago, will be sold at rate of \$100 from New York, \$96 from Philadelphia, \$95 from Washington and Baltimore, \$91 from Williamsport and Harrisburg, \$80 from Pittsburg, and proportionate rates from other points.

The party will be accompanied by a tourist agent and chaperon, and will travel in special Pullman sleeping cars. For the benefit of those who may desire to remain longer in Omaha, tickets will be made good to return on regular trains until November 15, inclusive. Such tickets include only railway transportation returning, with reduction of \$15 from above rates from all points.

For further information apply to ticket agents, tourist agent, 1196 Broadway, New York, or George W. Boyd, assistant general passenger agent, Philadelphia. †

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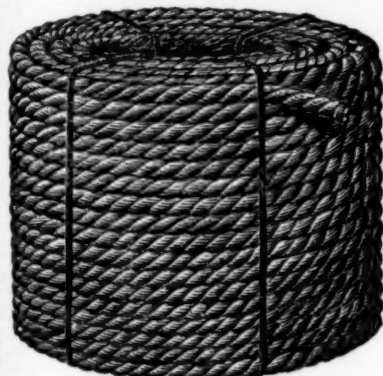
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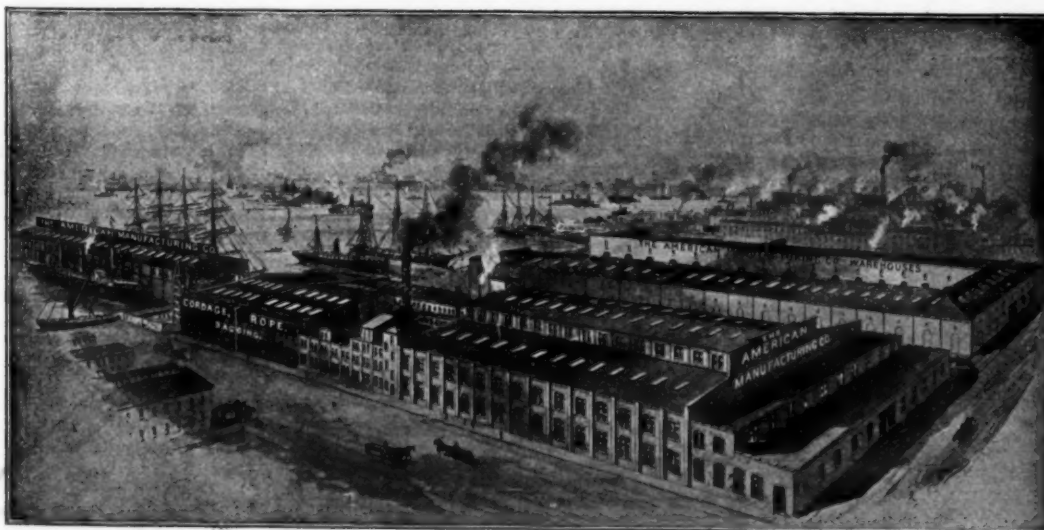
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A Abbott, F. C. 30 Abendroth & Root Mfg. Co. 36 Aerostatic Power Co. 6 Aetna Standard Iron & Steel Co. 10 Alabama Bridge & Boiler Co. 6 Albany Steam Trap Co. 16 Alber & Byrne. 6 Albro, E. D., Co. 24 Alexander Bros. 11 Alford, A. G., Sporting Goods Co. 33 Allen, W. S. 21 Alpha Paint & Mineral Co. 23 Alsing, J. R., Co. 28 American Balance Slide Valve Co. 18 American Cotton Oil Co. 3 American Diamond Rock Drill Co. 29 American Emery Wheel Works. 13 American Impulse Wheel Co. of N.Y. 31 American Mfg. Co. 153 American Pipe & Foundry Co. 36 American Promoting & Trust Co. 153 American Ship Windlass Co. 12 American Stoker Co. 13 American Supply Co. 27 American Well Works. * Ames Iron Works. 16 Andrews, A. H., & Co. 1 Andrews, Perry, & Bro. 31 Apollo Iron & Steel Co. 18 Armitage Mfg. Co. 23 Atkins, E. C., & Co. 25 Atlanta Envelope Co. 19 Atlanta Terra Cotta Co. 32	Cherry Mountain Supply Co. 20 Chesapeake Belting Co. * Coester Steel Castings Co. 13 Chicago Belting Co. 11 Christiana Machine Co. * Cincinnati Works. 13 Cincinnati Corrugating Co. 23 Cin., Hamilton & Dayton R. R. 34 Cincinnati Safe & Lock Co. 33 Clark, W. J., Co. 11 Clayton Air Compressor Works. 36 Cleveland, Lorain & Wheeling Ry. 32 Cleveland Wire Spring Co. 22 Climax Mfg. Co. 13 Coburn Trolley Track Mfg. Co. 15 Cohoes Iron Fdy. & Mch. Co. 27 Colt, Henry A. 35 Columbia Water Power Co. 20 Columbus Machine Co. 9 Commercial Electric Co. 35 Commercial Wood & Cement Co. 6 Conard, Thos. P. 21 Contractors' Plant Mfg. Co., Ltd. 16 Corbett Mill Supply Co. 6 Cordeaman Machine Co. 24 Cordeaman, Meyer & Co. 25 Cortright Metal Roofing Co. 23 Covert Mfg. Co. 19 Cox, Justice, Jr. 21 Crompton & Knowles Loom Wks. 4 Cronk Hanger Co. 7 Crosby Steam Gage & Valve Co. 17 Curtis & Marble Machine Co. 27 Cutler Mfg. Co. 6	Hambleton & Co. 153 Hammacher, Schlemmer & Co. 12 Hanover Foundry & Machine Co. 22 Hanson & Van Winkle Co. 35 Harrington & King Perforat'g Co. 4 Hartford Steam Boiler Inspection & Insurance Co. 24 Hartzell Novelty Works. 19 Hayes Construction Co. 6 Hazard Mfg. Co. 4 Help Wanted. 1 Hench & Dromgold. 25 Hendrick Mfg. Co., Limited. 19 Hickman, Williams & Co. 9 Hilz, Theo., & Son. 12 Hill & Howard. 6 Hirsch, L. K. 21 Hollands Mfg. Co. 9 Holmes, E. & B., Machinery Co. 24 Holt, S. L., & Co. 21 Hoopes & Townsend. 25 Howes, S., Co. 8 Huther Bros. 1	Muirhead Machine Works. 29 Munsterlyn J. P. 20 N National Paint Works. 22 National Pipe Bending Co. 17 National Roofing & Supply Co. 23 New Atlantic Hotel. 33 Newburg Ice Mch. & Engine Co. 15 N. J. Car Spring & Rubber Co. 11 New Jersey Zinc Co. 2 Newport News Shipbuilding & Dry Dock Co. 15 New York Equipment Co. 21 Niagara Machine & Tool Works. * Nicholson File Co. * Nordyke & Marmon Co. 28 Norris, Burnham & Co. 31 North American Metaline Co. 19 North American Trust Co. 153 Norton, C. H. 6 Norton Emery Wheel Co. 13	Smith, S. Morgan, Co. 31 Snow Steam Pump Works. 31 South Bend Spark Arrester Co. 26 Southeastern Lime & Cement Co. 6 Southern Bridge Co. 6 Southern Expanded Metal Co. 23 Southern Fdry & Mch. Works. 21 Southern Iron & Equipment Co. 21 Southern Iron & Steel Works. 6 Southern Railway Co. 21 Spears, Alden, Sons & Co. 21 Springfield Gas Engine Co. 9 Sprout, Waldron & Co. 9 Stafford, F. M., & Co. 153 Standard Brass Works. 9 Standard Oil Co. 29 Standard Paint Co. 29 Standard Scale & Supply Co., Ltd. 10 Stanley Electric Mfg. Co. 1 Starr, B. F., & Co. 1 Stebbins, Wallace. 14 Steel Rail Supply Co. 21 Steele, E. D. 21 Sterling Emery Wheel Mfg. Co. 1 Stevens, H., Sons Co. 26 Stewart, James & Co. 26 Stiles, E. S., Press Co., The. 9 Stillwell-Bierce & Smith-Valle Co. 9 Struthers, Wells & Co. 14 Stuebner, G. L., Iron Works. 11 Sturtevant, B. F., Co. 27 Sturtevant Mill Co. 26 Sullivan Machinery Co. 29
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C Caldwell, H. W., & Son Co. 4 Cameron, A. S., Steam Pump Wks. 30 Cameron & Barkley Co. 29 Capital City Machine Works. 8 Carborundum Co. 13 Cardwell Machine Co. 8 Carlin's, Thomas, Sons. 21 Carnell, George. 13 Caroline Iron Works. 29 Carr, Stuart R., & Co. 36 Carter Cotton Gin Co. 26 Case Mfg. Co. 16 Castner, Curran & Bullitt. 17 Central Mfg. Co. 35 C. & B. Line. 32 Chambersburg Engineering Co. 25 Chapman, Wm. A., & Co. 6 Charleston (S.C.) Bureau of Freight and Transportation. 18 Charlotte Machine Co. 27 Chattanooga Machinery Co. 24	E Earl & Wilson. 20 Eccles, S., Jr. * Egan Co. 25 Electrical Engin'ing & Supply Co. 35 Electro Gas Lighting Co. 9 Ellis & Helfenberger. 22 Empire Paint & Roofing Co. 21 Erikson, Edward E. 6 Etting, Edward J. 20 Eureka Fire Hose Co. 11 Everson, B. M. 21 Excelsior Knitting Mch. Mfg. Co. 26 Exchange Banking & Trust Co. 19 F Fairmount Machine Co. 26 Farquhar, A. B., Co., Limited. 24 Farr Telephone Co. 35 Fay, J. A., & Co. * Featherstone's, John, Sons. 19 Felt & Tarrant Mfg. Co. 15 Fiseld Tool Co. 12 Fitz-Hugh & Co. 21 Foos Gas Engine Co. 14 Foos Mfg. Co. 28 Forbes, W. D., & Co. 28 Fort Wayne Electric Corporation. 35 Fossick Co., T. L. 6 Foy, E. C. 20 Freese, E. M., & Co. * French, Saml. H., & Co. 22 Frick Co. 15 Froehling, Dr. Henry. 6 Fuel Economizer Co. * G Galt, John, & Sons. 23 Gandy Belting Co. 11 Gardner Governor Co. 31 Garrett, C. S., & Son. 23 General Electric Co. 34 General Fire Extinguisher Co. 6 Gilbert, C. M., & Co. 6 Golden's Foundry & Machine Co. 31 Gowdey, J. A., & Son. 26 Graphite Lubricating Co. 36 Griffing, A. A., Iron Co. 4 Guilfoix & Blanc. 6 Gutherie, D. S. 20	M Madison, William A. 20 Main Belting Co. 11 Makepeace, C. R., & Co. 6 Marine Iron Works. 9 Marion Steam Shovel Co. 2 Maryland Casualty Co. 153 Maryland Cement Co. 6 Maryland Mfg. & Construction Co. 35 Maryland Trust Co. 153 Mason Machine Works. 26 Mason Regulator Co. 31 McClave, Brooks & Co. 16 McConway & Torley Co. 13 McCoy, Joseph F., Co. 32 McFadden, Charles, Jr. 6 McGowan, John H., Co. 31 McKenna, David. 1 McLanahan & Stone. 28 Mecklenburg Iron Works. 14 Means & Fulton Iron Wks. 16 Mercantile Trust & Deposit Co. 153 Merchant & Co., Inc. * Merchants & Miners' Transp. Co. 32 Merrill Pneumatic Pump Co. 30 M. F. 21 Middendorf, Oliver & Co. 153 Middletown Machine Co. 9 Milburn, Frank P. 6 Miles, Franklin S. 9 Miller, Frank S. 21 Millett Core Oven Co. 16 More, Jones & Co. 9 Morgan Spring Co. 22 Morse Twist Drill & Mch. Co. 18 Morse, Williams & Co. 12 Morton Mfg. Co. 9 Mueller, H., Mfg. Co. 31 Muirhead, John, & Sons. *	Q Queen City Printing Ink Co. 32 R Radford, Va. Board of Trade. 20 Rand Drill Co. 31 Rawson Electric Co. 35 Reading Electrical Mfg. Co. 35 Record Printing House. 32 Reid, Thorburn. 6 Remington Machine Co. 15 Rhoads, J. E., & Sons. 11 Richmond Electrical Works. 35 Riley's, John F., Machine Works. 21 Robertson, Jas., Mfg. Co. 28 Robinson, J. M., & Co. 12 Robinson, Wm. C., & Son. 32 Robinson & Orr. 21 Ross, G. E. 20 Rowley & Hermance Co., Branch. 24 Royal Bag Mfg. Co. 1 Ruger, J. W. Mfg. Co. 14 Russell & Co. 29 S Saco & Pettie Machine Shops. 27 Samson Steel Belt Hook Co. 18 Saunders, D., Sons. 13 Sawyer Hardware & Supply Co. 10 Schieren, Chas. A., & Co. 11 Scioto Star Fire Brick Works. 9 Scott & Williams. 26 Scranton Corundum & Emery Wheel Works. 13 Seidel, R. D. 16 Shand, R. W. 20 Shelby Electric Co. 34 Shultz Belting Co. 36 Simpson, H. P. 36 Simpson, John J., & Co. 20 Simpson, J. S., & G. F. 28 Sinclair, S. H., Co. 19 Situations Wanted. 19 Skinner Chuck Co. 19 Slatington-Bangor Slate Syndicate. 36 Smethurst & Allen. 35 Smith-Courtney Co. 17 Smith, H. B., Machine Co. 24	Y York Mfg. Co. 15 Z Zamoiski, J. M., & Co. 24 Zier & Co., M. 26
Chattanooga Machinery Co. 24	Haines, William S., Co. 4 Hales & Ballinger. 6 Hall Steam Pump Co. 30	Hambleton & Co. 153 Hammacher, Schlemmer & Co. 12 Hanover Foundry & Machine Co. 22 Hanson & Van Winkle Co. 35 Harrington & King Perforat'g Co. 4 Hartford Steam Boiler Inspection & Insurance Co. 24 Hartzell Novelty Works. 19 Hayes Construction Co. 6 Hazard Mfg. Co. 4 Help Wanted. 1 Hench & Dromgold. 25 Hendrick Mfg. Co., Limited. 19 Hickman, Williams & Co. 9 Hilz, Theo., & Son. 12 Hill & Howard. 6 Hirsch, L. K. 21 Hollands Mfg. Co. 9 Holmes, E. & B., Machinery Co. 24 Holt, S. L., & Co. 21 Hoopes & Townsend. 25 Howes, S., Co. 8 Huther Bros. 1	Muirhead Machine Works. 29 Munsterlyn J. P. 20 N National Paint Works. 22 National Pipe Bending Co. 17 National Roofing & Supply Co. 23 New Atlantic Hotel. 33 Newburg Ice Mch. & Engine Co. 15 N. J. Car Spring & Rubber Co. 11 New Jersey Zinc Co. 2 Newport News Shipbuilding & Dry Dock Co. 15 New York Equipment Co. 21 Niagara Machine & Tool Works. * Nicholson File Co. * Nordyke & Marmon Co. 28 Norris, Burnham & Co. 31 North American Metaline Co. 19 North American Trust Co. 153 Norton, C. H. 6 Norton Emery Wheel Co. 13	Smith, S. Morgan, Co. 31 Snow Steam Pump Works. 31 South Bend Spark Arrester Co. 26 Southeastern Lime & Cement Co. 6 Southern Bridge Co. 6 Southern Expanded Metal Co. 23 Southern Fdry & Mch. Works. 21 Southern Iron & Equipment Co. 21 Southern Iron & Steel Works. 6 Southern Railway Co. 21 Spears, Alden, Sons & Co. 21 Springfield Gas Engine Co. 9 Sprout, Waldron & Co. 9 Stafford, F. M., & Co. 153 Standard Brass Works. 9 Standard Oil Co. 29 Standard Paint Co. 29 Standard Scale & Supply Co., Ltd. 10 Stanley Electric Mfg. Co. 1 Starr, B. F., & Co. 1 Stebbins, Wallace. 14 Steel Rail Supply Co. 21 Steele, E. D. 21 Sterling Emery Wheel Mfg. Co. 1 Stevens, H., Sons Co. 26 Stewart, James & Co. 26 Stiles, E. S., Press Co., The. 9 Stillwell-Bierce & Smith-Valle Co. 9 Struthers, Wells & Co. 14 Stuebner, G. L., Iron Works. 11 Sturtevant, B. F., Co. 27 Sturtevant Mill Co. 26 Sullivan Machinery Co. 29

Ads. marked thus * appear every other week.
Ads. marked thus † appear in first issue of each month.
Ads. marked thus ‡ appear in second issue of each month.
Ads. marked thus § not in this issue.